SELF-ESTEEM AND RESILIENCE IN STUDENTS WITH LITERACY LEARNING DIFFICULTIES WITHIN AN EDUCATIONAL CONTEXT

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The material presented in this thesis does not incorporate, without acknowledgement, any material previously submitted for a degree or diploma at any university. To the best of my knowledge and belief it does not contain any material published or written by another person, except where reference is made in the text.

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Amanda Denston

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"We cannot solve our problems with the same thinking we used when we created them."

Albert Einstein

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Abstract

Understanding the challenges that students with literacy learning difficulties (LLD) face in their psychosocial development should be a fundamental focus for teaching practitioners and researchers. While success in literacy development is acknowledged to be integral, not only to success within the educational context but also to how individuals navigate through local and global society, less attention has been paid to the difficulties in psychosocial development that often accompany difficulties in literacy development. The pervasive nature of LLD can influence students' ability to positively adapt to stressors within their lives. While research has typically focused on the remediation of psychosocial development and literacy development as separate entities, other research has targeted psychosocial development via the remediation of literacy difficulties. The current research adds to existing literature by examining the association between psychosocial and literacy development via an academic intervention in students with LLD.

The primary focus of the current research was whether the psychosocial development of students with LLD in Year 4 to Year 6 (U. S. Grades 3 to 5) could be affected via a targeted literacy intervention. Study 1 included instruction in general literacy skills, focusing primarily on decoding and fluency in reading text at or above the reading level of the student. Study 2 and Study 3 further included specific instruction in morphological and orthographic awareness. The effectiveness of the targeted intervention at improving students' literacy development was assessed, along with changes in measures of self-esteem, self-efficacy, and resilience. Findings supported the notion that psychosocial and literacy development of students with LLD could be positively influenced via such targeted interventions. However, gains in self-efficacy and resilience seem to be dependent on the levels of resilience at pre-intervention. Interventions that aim to positively impact on psychosocial, as well as, literacy

levels in children with poor literacy acquisition; therefore, may need to be considered against the child's existing psychosocial development.

Presentations Arising From This Thesis

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Chapter 1

An Introduction and Overview to the Thesis

Success in literacy development is essential for children. In New Zealand, being literate in the English language is integral to the ability of students to participate within the New Zealand educational system. According to *The New Zealand Curriculum*, the document that is an explicit statement of what is considered to be important in education in New Zealand, participation within the various facets of society in both New Zealand and globally, is dependent on being literate in English (Ministry of Education, 2007). At both the primary and secondary level of education, success in literacy development is inextricably linked to students' ability to be successful within the seven other learning areas contained within the curriculum (Ministry of Education, 2007). For most students the acquisition of literacy skills progresses along an expected trajectory; however, for other students, difficulties emerge for individuals that have been noted to be pervasive, due to the emphasis on literacy within schools.

In the majority of New Zealand schools, literacy learning difficulties (LLD) in younger students are supported via the Ministry of Education funded Reading Recovery programme that targets students with LLD following one year of formal education (Lee, 2010). However, data collected from the Reading Recovery programme clearly indicates that it does not remediate difficulties in literacy development for all students (Lee, 2010). Thus, despite the emphasis that the Ministry of Education places on the importance of students being literate and the data from Reading Recovery, there appears to be little acknowledgement, in terms of ministry funded interventions, of the many students whom

experience ongoing difficulties in their literacy development beyond their early years of education. Interventions for older students with LLD appear to primarily occur at school-level via commercially published literacy interventions or school-developed programmes.

Much emphasis in literature has been placed on the difficulties that can occur in literacy development, primarily via the underlying deficits or the consequences of literacy development, in terms of academic achievement. However, the ability of students to succeed within the educational context is more complex than the underlying deficits or academic outcomes. Notably less emphasis has been placed on the underlying factors that include psychosocial development, which can influence the engagement of students in literacy acts and which has also been associated with academic outcomes. Psychosocial development has primarily been researched via a focus on self-esteem and self-efficacy. Another area of psychosocial development proposed as being associated with LLD and academic outcomes, is resilience.

While interest in the self has been long evident within history, more contemporary conceptions of self-esteem have been highly influenced by dominant fields within psychology. Early conceptions of the self were derived around understanding self-processes, although the dominance of behaviourist theory within the field of psychology saw self-esteem become firmly entrenched as a means by which the tangible behaviour of individuals within different contexts could be explained (Pajares & Schunk, 2001). Humanistic, cognitivist, and motivational theories heavily influenced later conceptions of self-esteem that evolved to include behavioural, cognitive, and motivational aspects (Trzesniewski, Donnellan, & Robins, 2013). As such, self-esteem has been conceptualised differently, although it appears that two overarching aspects contribute to the development of self-esteem. The first aspect includes the individual's experiences or interactions within their

social world. The second aspect includes the evaluations that an individual makes of their experiences. Debate exists regarding the basis of these evaluations; however, within literature it is largely viewed that they are influenced by cognitive and affective components as well as an individual's previous experiences. Individual differences have been touted as being influential to how an individual evaluates their experiences, which have been posited as being underpinned by cognitive development (Harter, 2006) and cultural influences (Heine, Lehman, Markus, & Kitayama, 1999).

Much debates exists as to whether self-esteem is a uni-dimensional construct consisting solely of a global domain or whether self-esteem is a multi-faceted construct where differentiation into academic and non-academic domains and sub-domains such as reading, writing, and physical prowess occur. Research tends to support the notion that self-esteem is both multi-faceted and global in nature. One domain of self-esteem that has been of increasing interest to education and research is academic self-esteem. Literature has conceptualised academic self-esteem in two ways. The first relates to the evaluations that a student makes of his or her experiences within the wider school environment (Marsh & Craven, 2006). The second pertains to the evaluations that an individual makes of his or her ability within the academic domain (Trautwein, Lüdtke, Köller, & Baumert, 2006). The second conceptualisation of academic self-esteem has garnered more research focus due to the fact that learning tasks and outcomes have been a means by which the development of academic self-esteem has been examined. This research has also highlighted the role of moderating variables, such as skill level, in the development of academic self-esteem. The trajectory underpinning the association between learning tasks and outcomes (commonly referred to as academic achievement) and academic self-esteem has been a key focus within research, largely due to the premise that academic self-esteem contained motivational factors (Byrne, 1984). This primarily occurred through research that contrasted the self-enhancement

theory that posits academic self-esteem influences academic achievement with the skills development model that posits academic achievement influences academic self-esteem (Guay, Ratelle, Roy, & Litalien, 2010). Calsyn and Kenny (1977) found support for the causal predominance of a skills development model via grade point average over self-enhancement related measures. However, more current advances in confirmatory factor analysis (CFA) and a structural equation modeling (SEM) have resulted in support for a reciprocal association between the two variables (Marsh, Byrne, & Yeung, 1999; Marsh & Yeung, 1998).

A more recently developed construct related within the field of psychosocial development is self-efficacy. This construct emerged from debate regarding human behaviour and whether the acquisition and regulation of behaviour occurred via performance-based or cognitive processes. Cognitive mechanisms were viewed as mediating behavioural change as well as effecting psychological change, which meant that human behaviour was not underpinned by traditional theories of operant and classical conditioning (Bandura, 1997). According to Bandura (1997) behavioural change is underpinned by self-efficacy that refers to the judgements that an individual makes regarding their own performance capabilities. While self-efficacy and self-esteem have often been treated synonymously due to the fact that they are both developed via past experiences as well as, to a lesser degree, social comparative processes and reinforcement from significant others (Bong & Skaalvik, 2003; Pajares & Schunk, 2001), self-efficacy is developed via cognitive and not affective processes. While an association exists between self-efficacy and self-esteem, this association is not fixed but is heavily influenced by the value that an individual places on an activity (Bandura, 1997). As such, research has noted higher correlations between self-efficacy and self-esteem where the assignment of value by individuals on activities is greater. However, Bandura (1997) cautions against an automatic association between value assignment and accomplishment of outcomes

because self-esteem is not adequate on its own: individuals also require self-efficacy to accomplish outcomes.

Self-efficacy is formed via four major information sources that include mastery experiences, vicarious experiences, verbal persuasion, and physiological and affective states. Experiences influence the development of self-efficacy differently. Successful experiences promote self-efficacy while unsuccessful experiences can compromise self-efficacy, although this is more likely to occur if self-efficacy has yet to be established. Difficult experiences are also instrumental to the development of self-efficacy if perseverance occurs because it fosters the development of resilient self-efficacy. However, not all experiences contribute to the development of self-efficacy because experiences must contain relevant material. The outcomes of experiences over time are interpreted and integrated into self-efficacy beliefs that influence subsequent experiences. This indicates that the development of self-efficacy is reciprocal in nature with it being both the product and construct of experiences (Bandura, 1997).

Self-efficacy has also been of interest within educational research, due to research identifying it as an influential variable in academic achievement (Multon, Brown, & Lent, 1991). While Multon and colleagues (1991) found that the association between self-efficacy and academic achievement was lower for elementary students in comparison to college and high school students, Pajares and Schunk (2001) later noted that these findings were influenced by the operationalisation of constructs as well as the academic outcomes selected. They argued that these findings support the notion that self-efficacy beliefs are context-specific and that a greater correspondence between the self-efficacy beliefs and academic outcomes being compared strengthens the association between the two variables. Academic self-efficacy has been defined as the convictions that an individual holds regarding their

ability to achieve success within specific academic tasks (Bong & Skaalvik, 2003); however, the multi-dimensional nature of self-efficacy means that research often focuses on sub-domains, especially given the increase in predictive validity when greater alignment between self-efficacy beliefs and academic achievements occurs.

It is controversial as to when self-efficacy develops in children. Research has found that differentiation can occur as young as Grade 1 (Lee & Jonson-Reid, 2016; Liew, McTigue, Barrois, & Hughes, 2008), although research is complex due to the fact that self-efficacy beliefs have been found to generalise beyond specific domains and sub-domains (Amitay & Gumpel, 2015; Bandura, 1997; Jungert, Hesser, & Träff, 2014). One reason for this is that the development of resilient self-efficacy, via perseverance, enables students to assign value to experiences that had previously held little value. The development of self-efficacy beliefs in students is also influenced by cognitive development. Children have lesser-developed cognitive abilities. This means that self-efficacy is less likely to be developed via internal processes, such as self-regulatory behaviours, and is more likely to be mediated by external factors such as extrinsic motivation, performance outcomes, and performance feedback.

Resilience emerged within the field of psychopathology when researchers found that some children that were at-risk for maladaptation due to exposure to negative circumstances demonstrated positive adaptation and developed into competent adults (Luthar, Cicchetti, & Becker, 2000; Masten et al., 1999; Schoon, 2006; Werner, 2000b). Early research focused on identifying characteristics of individuals that enabled them to adapt to circumstances of risk, which were termed protective factors. This resulted in resilience being conceptualised as a trait-like construct, which was later criticised in literature because it was underpinned by the dichotomising of innate characteristics into either the existence of, or absence of specific

characteristics (Luthar & Cicchetti, 2000; Luthar, Sawyer, & Brown, 2006). The notion that resilience was an outcome was also criticised because it portrayed resilience as a linear construct with the existence of protective factors being adequate to offset risk; however, Beauvais and Oetting (1999) argued that protective factors were only influential during circumstances of adversity. Furthermore, factors were identified within research that promoted beneficial or compensatory effects, which were termed promotive factors (Sameroff, Morrison, & Peck, 2003).

Resilience is defined as a dynamic process that develops over time that enables individuals to cope with or overcome significant adversity (Cummings, Davies, & Campbell, 2002; Ofiesh & Mather, 2012). It is generally agreed that resilience is a multi-faceted construct that is influenced by temporal and contextual factors and is underpinned by the exposure of an individual to risk or adversity and the positive adaptation by the individual (Fletcher & Sarkar, 2013; Schoon, 2006). Debate does exist as to what constitutes risk in terms of the experiences and level of chronicity that may result in maladaptation as well as the threshold against which risk is judged, which has resulted in categorical and threshold-dependent conceptualisations (Fletcher & Sarkar, 2013). Debate also exists as to what constitutes adaptation that has been operationalised within literature in multiple ways including the absence of psychopathology, increases in positive outcomes or competence, and the achievement of developmental milestones. While studies tend to operationalise adaptability in terms of increases in competence (Luthar, Lyman, & Crossman, 2014), adaptability is constrained by individual development as well as being influenced by contextual factors that can affect the level of adaptability that can occur.

Resilience has been of prominence within the field of education, largely due to the recognition of the school as an environment where resilience can be enhanced in children

(Martin, 2002). The majority of focus has been placed upon enhancing the adaptability of at-risk children via the moderation or interaction of external risk factors or improvements in individual competence. However, students can also present with a multitude of risk factors that derive both internally and externally to the educational context, which can result in an accumulation of risk for the child, especially when the risk is external to the control of the child (Doll & Lyon, 1998). Students with LLD have been of interest to resilience research because these students are deemed to be at-risk for maladaptation due to their literacy difficulties that have been shown to influence academic competence in young adulthood (Masten et al., 2004), as well as due to the chronicity of LLD (Ofiesh & Mather, 2012) that can increase the risk of wider maladaptation in terms of academic achievement (Forrest-Bank & Jenson, 2015). Research has also indicated that students with LLD may be at risk of general maladaptation in education that includes psychosocial development, due to the role of negative spinoff effects (Sorensen et al., 2003).

The capacity of students with LLD to adapt during experiences of risk is influenced by developmental constraints as well as moderating factors that include self-esteem and self-efficacy. According to Rutter (1987) it is the interactions within the educational context that are important when examining associations between risk (LLD) and adaptation. Resilience in education has primarily been examined via the proximal or distal systems of students. Research (Sorensen et al., 2003) tends to suggest that factors within the distal system are associated with resilience to a lesser degree than factors within the proximal system, such as teacher feedback, praise, recognition, and beliefs, which have been implicated in the adaptation and maladaptation of students with LLD (Casserly, 2013; Hattie & Timperley, 2007; Hettinger, 1982; Lackaye & Margalit, 2006; O'Connor & McCartney, 2007).

Difficulties in literacy and psychosocial development are implicated in academic achievement (Byrne, 1984; Casserly, 2013; Chapman, 1988; Chapman & Tunmer, 1997; Humphrey, 2004) as well as other factors that affect learning such as perceptions of competence, student motivation, and behaviour (Committee on the Prevention of Reading Difficulties in Young Children, 1998; Cosden, Elliott, Noble, & Kelemen, 1999; Ghilay & Ghilay, 2015). The association between psychosocial development and academic achievement is somewhat contentious (see Baumeister, Campbell, Krueger, & Vohs, 2003). Literature tends to support the notion that a reciprocal relationship exists between literacy learning difficulties (LLD) and psychosocial development. However, this reciprocal relationship means that literacy learning difficulties and psychosocial development can act as a feedback loop to further affect the literacy and psychosocial development of students with LLD (Chapman & Tunmer, 1997; Tunmer, Chapman, & Prochnow, 2003).

Feedback loops, once developed, continue to be influential as students move throughout the educational system because difficulties in literacy development are likely to become more problematic. This is because primary school students have been found to experience a Year 5 (4^{th} grade) slump, where they experience more difficult texts of a variety of genres, which contain more complex language and structural features (Sanacore & Palumbo, 2009). Even if students with LLD do not encounter increasingly challenging texts, difficulties can still evolve due to a lack of texts that engage students that would contribute to the development of complex structural and language features (Sanacore & Palumbo, 2009). Increases in curriculum demands require increased levels of proficiency in literacy that further affects the association between LLD and psychosocial development.

Within the New Zealand curriculum, psychosocial development and LLD are viewed separately, with each area being targeted in isolation. Literacy development is contained

within the English learning area while psychosocial development is contained within the Health and Physical Education learning area (Ministry of Education, 2007). No explicit reference to either self-esteem or self-efficacy is evident within the curriculum documentation. However, reference is made to resilience. Within the curriculum documents, resilience is developed via students strengthening of their sense of self and self-worth as well as managing periods of change and responsibly participating in decision-making processes (Ministry of Education, 2007).

Much research exists in terms of literacy and psychosocial development as separate entities. Research also exists that focuses on both areas simultaneously, with much of the research relating to the association between psychosocial development and the academic achievement of students with LLD. A meta-analysis by Elbaum and Vaughn (2003) reviewed 64 studies that related to students with LLD. They found that for students with LLD within the primary or elementary years, self-esteem could be positively affected via interventions that target academic achievement or the development of more efficient learning strategies. This suggests that the exploration of the association between literacy and psychosocial development can occur via the fostering of literacy levels of students with LLD. Thus, even though a reciprocal association exists between these areas, the association can be examined via adopting a skills development perspective. Furthermore, according to Pajares and Schunk (2001) targeting psychosocial development will have little affect, in the absence of skills and knowledge that underpin academic achievement.

The current research was carried out in order to explore the association between psychosocial development and literacy acquisition in students with LLD. Such work is important because of the points discussed above and covered in more detail in the rest of this thesis. In addition, declines in students' self-perceptions, which underpins psychosocial development that research suggests typically occur around 7 and 8 years of age, appear to

occur early in students with LLD probably because of the constant reinforcement of their lowered abilities in literacy that they face across the early years of education (Chapman, 1988). Compounding negative literacy experiences associated with increasingly adverse affects to students' psychosocial development would then be expected as students progress through their formal education (Chapman, 1988). Further developing an understanding of the relationship between psychosocial and literacy development, therefore, will not only contribute to the existing literature but also should provide educational institutions and practitioners, as well as, governmental bodies, with findings that can positively contribute to supporting the development of those with LLD, both in terms of the remediation of the literacy problems but also their psychosocial development and the positive benefits to well-being that this will lead to.

This thesis reports three exploratory studies. Although the research utilised a pre-post research framework, the specific focus of the work was the examination of associations between literacy and psychosocial development and how these might change with improvements in literacy levels following a targeted intervention. The exploratory nature of this research meant that the findings from each study informed subsequent studies. Chapter 2 provides a background to the current research. The chapter discusses literacy and the importance of being literate before discussing several theories relevant to reading development and the factors that underlie why students may struggle with reading development. This is followed by a brief discussion of interventions for reading difficulties. Theories of psychosocial development are then discussed with a specific focus on self-esteem, self-efficacy, and resilience, as well as a brief discussion of interventions that focus on the remediation of psychosocial and literacy difficulties.

Chapter 3 presents Study 1 that examined the association between literacy and psychosocial development. In this study, the literacy development of students was targeted

via an intervention that was underpinned by general literacy instruction following a decoding, vocabulary, and fluency format. Twenty students in Years 4 to 6 participated in the intervention that was carried out over 19, 30-minute sessions. Results indicated that significant gains were identified in some measures of literacy development that included the Burt, NARA-accuracy and comprehension as well as morphological awareness-judgement. Correlational analyses identified associations between some measures of literacy and psychosocial development; however, these were variable between measures and included both positive and negative associations. These variable correlations tend to contrast findings within literature that supports the association between academic achievement and academic self-esteem.

Interestingly, analysis found that morphological awareness was moderately and positively associated with global self-esteem and academic self-esteem but was moderately and negatively associated to general self-efficacy and academic self-efficacy. This suggests that morphological awareness was influential to the students' evaluations of self-worth but that the students evaluated themselves as less confident at being able to accomplish specific tasks. This supports the notion in literature that the relationship between self-efficacy and self-esteem is not fixed in nature (Bandura, 1997; Pajares & Schunk, 2001). The finding that NARA-comprehension was positively associated with academic self-efficacy and reading attitude suggest that students evaluated themselves as more capable in the area of reading comprehension following the intervention. As students' capabilities in reading comprehension increased, this was associated with improvements in their attitude toward reading. These findings were interesting given that little consideration was given to developing reading comprehension skills during the course of the intervention and that while students evaluated reading comprehension as being positively associated to their evaluations of their ability to be successful in specific tasks, does not appear to be associated to the

evaluations that students made regarding their self-worth. This suggests that different areas of literacy development may be differentially associated with areas of psychosocial development. This possibly relates to the attribution that the child puts on the different areas of literacy development. Limitations to the administration and content of measures and the intervention are discussed. Consideration is given to the role of morphological awareness in fostering literacy development in students with LLD as well as to intervention length.

Chapter 4 presents Study 2 that also sought to understand the association between literacy and psychosocial development, via a targeted change in literacy development. In the current study, literacy development was targeted via an intervention, which was underpinned by the development of meta-linguistic skills, primarily via a morphological approach. This approach was integrated into the decoding, vocabulary, and fluency format applied in Study 1. Twenty-one students in Years 4 to 6 participated in the intervention that was carried out over 39, 30-minute sessions. Results found significant gains in all literacy measures that included reading accuracy, rate, comprehension as well as morphological awareness and production. Correlational analyses identified multiple moderate and strong associations between literacy and psychosocial development. As with Study 1, variation was identified in the associations, due to directional differences; however, in the current study the majority of associations were negative. In particular, all components of the NARA measure were negatively associated with academic self-esteem. NARA-rate was negatively associated with all measures of psychosocial development with the exception of social self-efficacy that was also positively correlated with morphological awareness-judgement.

As with Study 1, the findings from the correlational analyses appeared to contrast with findings within literature regarding the association between academic self-esteem and academic achievement. While students' levels of literacy development in terms of in-text accuracy, comprehension, and speed, via the NARA measure, had significantly increased the

evaluations that students were making regarding these experiences were negatively associated with their development of academic self-esteem. The role of students' perceptions of competence in text-based reading is suggested as a factor influencing this association. The differentiation of self-esteem into constituent components may have been influential to these findings because global self-esteem was positively and moderately correlated with NARA-accuracy, which suggests that in-text word reading were influential to the evaluations that students made about their overall self-worth. The development of students' interpersonal relationships is also discussed, in light of the positive correlations between social self-efficacy and morphological awareness (judgement) and NARA-rate. Vicarious learning is posited as a factor influencing the development of social self-efficacy in the current study due to the alignment of peers that students could use as referent models for their learning. Consideration is given to limitations within the current study that included administration guidelines of the NARA measure and the psychosocial questionnaire. Consideration is also given to the content of the morphological production-morpho-syntactic task.

Chapter 5 presents the final study that again sought to examine the association between literacy and psychosocial development, via a change in literacy development. Change in literacy development was via the same approach used in Study 2 that included specific literacy instruction aimed at developing students' meta-linguistic awareness, primarily via a morphological approach. As with the previous study, the morphological approach was integrated into the decoding, vocabulary, and fluency components underpinning the intervention framework of the previous two studies. Sixteen students in Years 4 to 6 participated in the intervention that was carried out over 39, 30-minute sessions. Results indicated that change in the literacy development of students with LLD had occurred for all measures of literacy development that included single word and text-based reading accuracy, reading rate, and reading comprehension as well as morphological awareness and

production. Correlational analysis identified numerous correlations that varied in direction and strength. Of interest was the negative association identified between the Burt and general self-efficacy and its social and emotional subscales, whereas, NARA-accuracy was positively associated with general self-efficacy and its social and emotional subscales. Medium and large positive correlations were identified between morphological awareness-word analogy and resilience and all components of the self-efficacy measure. NARA-rate was differentially associated with psychosocial measures that included a positive association with global self-esteem but negative associations with social and emotional self-efficacy. The role of the positive associations between the NARA-accuracy and general, social, and emotional self-efficacy measures in mediating some of the negative associations identified between the Burt and NARA-rate measures are discussed due to the increase in students' perceptions of their capabilities. Success in tasks and social information were also posited as variables that influence whether specific aspects of literacy development become psychologically central to students. This may explain the variability in correlations that were identified in the current study between measures of literacy and psychosocial development.

The variability in the strength and directions of the correlations identified across the three studies, resulted in additional analyses being carried out in Chapter 6 in order to understand why these variations may have occurred. Analyses were performed using variables that had been identified in literature as influential to the association between literacy and psychosocial development. These variables included individual variation (Elbaum & Vaughn, 1999), year level/age (Chapman, 1988), gender (Badayai & Ismail, 2012), and initial levels of psychosocial development (Elbaum & Vaughn, 1999). Removing specific individuals from Study 2 was not found to significantly change the existing results. Significant differences were found between Year 4 and Year 6 students for the general self-efficacy measure and its academic self-efficacy subscale. Gender was not found to be

associated with measures of psychosocial and literacy development. For initial levels of psychosocial development that in the current study included global self-esteem, academic self-esteem, and resilience, an interaction effect between global self-esteem and time was identified for global self-esteem and resilience in Study 1 and for emotional self-efficacy in Study 2. Interaction effects were identified for time and academic self-esteem were identified in the global self-esteem and emotional self-efficacy measures in Study 2. For the resilience measure, interaction effects were identified for general and emotional self-efficacy in Study 2 and for resilience, general self-efficacy, and academic self-efficacy in Study 3.

The final chapter presents an overview of the findings from the three studies as well as a discussion on the findings from the additional analyses for the psychosocial measures. Differences in the degree of literacy learning difficulties experienced by students, within the current study, are discussed as one possible factor influencing levels of psychosocial development. Factors within the educational context are also suggested as influencing the psychosocial development of students. One of the main findings from the current research relates to differences that were identified in terms of the efficacy of the intervention for different groups of students. Students with higher scores at pre-intervention on psychosocial measures tended to make little or no gains, over the course of the intervention in their psychosocial development. This contrasted with students with lower psychosocial scores at pre-intervention who in the main showed evidence of gains in their psychosocial development. This finding occurred across the three psychosocial measures analysed, although interestingly, students with higher levels of academic self-esteem at pre-intervention in Study 2 were found to demonstrate gains in global self-esteem while the inverse occurred for students with lower levels of academic self-esteem.

The self-appraisals that students make that are influenced by cognitive development may effect the psychosocial development of students with LLD. Self-appraisals that are based

on social comparisons may result in lowered perceptions of competence for some individuals. Research also suggests that individuals' self-appraisals become increasingly accurate over time as individuals become increasingly aware of their actual capacities (Harter, 2012a). Decreases to existing levels of psychosocial development may occur for individual whose actual capacities are lower than their idealised capacities. Overall, the additional analyses suggests that students with lower levels of psychosocial development are more likely to benefit from a targeted literacy intervention than students with higher levels of psychosocial development. Another key finding was that resilience was influential at pre- and post-intervention and gains were more likely to be demonstrated in self-efficacy, as opposed to self-esteem.

In the current research, LLD was conceptualised as a risk factor due to the fact that students could experience maladjustment or negative outcomes due to their difficulties in literacy development. Resilience was measured via students' ability to manage risk that is associated with LLD, which enabled a focus on aspects of positive adaptation and protective factors and processes to occur. Given the multiplicity of factors and processes that can influence the development of resilience, the scope of the current research was restricted to the students' educational context, which has been noted within literature to be influential to the development of resilience (Luthar et al., 2006; Luthar & Zelazo, 2003; Miller, 2002). Salient factors that may have mediated the risk experienced by students with LLD are discussed. These factors include the challenging nature of the intervention that targeted literacy development, which was underpinned by the use of age-appropriate texts that exposed students to morphologically complex vocabulary as well as a decoding strategy that provided students with an explicit means by which to decode complex vocabulary. It is suggested that the decoding strategy that included explicit instruction in morphological awareness increased students' understandings in morphology as well as orthography and phonology that could be

applied to unknown vocabulary. Furthermore, these new understandings could also bee applied to determine meaning within the vocabulary component and the fluency components of the intervention. It is also suggested that the development of metalinguistic skills may have resulted in a generative effect for students due to the fact that these skills could be applied outside of the intervention context, to further protect students against the ongoing risk of LLD.

Findings from the current research support literature (Bandura, 1997; Martin & Marsh, 2006; Wyman, 2003) that has noted an association between resilience and self-efficacy. Students with higher levels of resilience were found to demonstrate higher scores of self-efficacy in the current sample of students. Cassidy (2015) posited that this association was due to students with higher levels of self-efficacy demonstrating adaptive responses during situations of risk. However, the results from the current research suggest that the association is complex and that context-specific factors may affect the association in students with LLD differently. That said, the finding of the association between resilience and self-efficacy suggests that these areas of psychosocial development should be the focus of future research. This is in contrast to the focus on self-esteem that typically dominates research relating to psychosocial development in students with LLD.

The thesis concludes with a discussion of the limitations to the current research with consideration given to future research. The researcher as a teacher paradigm is explored with the viewpoint of engaging general classroom teachers in future research in order to explore the role of metalinguistic skills in the remediation of LLD in older primary aged students. Consideration was given to the timeframe over which data collection occurred. Given the key finding of the association between self-efficacy and resilience, additional testing points may be advantageous in identifying latent effects of protective factors and processes in the development of self-efficacy. It is also suggested that future research should include a focus

on the pre-intervention scores of students for self-efficacy. This is because the intervention appeared to have differential effect for students with high and low levels of self-efficacy at pre-intervention. Limitations exist in regards to the validity and reliability of the control data used within this research, especially in relation to Running Records and Overall Teacher Judgements (OTJ). Future research could include matched control and intervention groups. Research that includes general classroom teachers within the research framework may also increase the clarity of information provided by the participating school.

Chapter 2

Literature Review

Literacy and the Importance of being Literate

The importance of an individual being literate is a common belief within many contemporary societies. Having a high degree of literacy skills is required in order for individuals to participate within a globalised world governed by complex social and political forces (Tunmer & Chapman, 2015). The importance of an individual being literate is further underscored by the tenet that an individual's opportunities in life, educationally and beyond, are largely determined by their level of literacy (Tunmer & Chapman, 2015). However, what constitutes being literate is highly contestable and variable between cultures. According to Baker (2001) literacy is a powerful tool that reflects and contributes to the development of social norms and values that can enculturate or empower citizens. However, notions around being literate and literacy practices are primarily related to the ability of an individual to read and write. According to Tunmer and Chapman (2015) lifelong learning is dependent upon the ability of the individual to read. Thus, reading not only affects the ability of the individual to be successful within their schooling but also their future life choices. The importance of reading and writing is mirrored by Baker (2001), who stated that the ability to read and write underpins the ability of the individual to survive, be secure, and have status within society. As the Committee on the Prevention of Reading Difficulties in Young Children (1998) succinctly stated, "reading is essential for success in our society" (p.1).

The aforementioned emphasis on reading and writing is deeply embedded within a historical context. With regard to reading, the lifespan developmental model of reading

emerged during the 1930s, with educators and researchers showing interest in areas of reading that included lifelong reading habits and social aspects of reading (Fox & Alexander, 2011). Interest in reading development during adulthood reflected the increasing popularity of written material within society during this time. The importance of reading for individuals and their livelihoods was evident. Reading was viewed as not only important for purposes of personal fulfilment, but was also linked to notions of citizenship (Fox & Alexander, 2011). Thus, reading underpinned belonging and participating within society.

In the 1950s reading research began to move away from a lifespan developmental approach to focus on understanding the skills underpinning word identification in beginning readers (Fox & Alexander, 2011). Thus, reading became about access to print and the transmission of a set of skills that enabled individuals to read (Fox & Alexander, 2011). Experimental psychologists were primarily interested in aspects of reading that included perceptual processes, word structure, and technical writing (Rassool, 2009). Significant interest in the cognitive processes that underpinned reading acquisition and skilled reading emerged and literacy evolved to become instruction in the skills needed for proficient reading (Rassool, 2009). During this period, literacy became dominated by the topic of decoding, although other literacies were evident within research and literature. Gough (1995) noted that literacy comprised other forms of literacy, such as musical, computer, political literacy, and Jewish literacy. However, he viewed that the first concern of literacy related to the ability of individuals to read and write (Gough, 1995). This illustrates the domination that reading and writing held as the primary form of literacy. As Gough (1995) acknowledged, this narrowing of literacy to reading and writing resulted in the conceptualisation that literacy was a set of psychological skills that related to the individual. Other forms of literacy, according to Gough (1995), emerged on account of or subsequent to, the act of reading and writing. Thus, other forms of literacy were perceived as being secondary to the skill of reading and writing.

Gough (1995) further reinforced the notion that literacy was individualistic by stating that the skills underpinning reading were distinct from the social environment in which they were performed.

Differences existed; however, within the field of reading research that related to how readers learned to read. While experimental psychologists, such as Gough, believed that reading skills developed via the decoding of text, other notions of literacy were embedded within the social environment that viewed literacy as being socially constructed and comprised of multiple forms (Lankshear & McLaren, 1993). Socio-psycholinguists advocated that reading developed within the five inextricably linked principles of learning, teaching, language, curriculum, and social community (Goodman & Goodman, 2007). Reading developed via a process that was dependent upon the interaction of three systems; the graphophonic, syntactic, and semantic systems, which Goodman argued could not be separated for instructional purposes (Rassool, 2009). As such, readers constructed meaning via processing language (Goodman & Goodman, 2004). Reading acquisition was also dependent on the existing knowledge and prior experiences of the individual. Underpinning this whole-language movement was the tenet that language and literacy developed through their contextual use and that oral and written language were a major influence in this development (Goodman & Goodman, 2007). The disparities in these models of reading development that presented a top-down model of reading development (whole language) and a bottom-up model (decoding) resulted in the longstanding reading wars that was essentially reduced to a whole language versus phonics debate (Stanovich & Stanovich, 1995).

Advances within the field of literacy over the last two decades have changed how literacy has been conceptualised (Rassool, 2009). However, it can be argued that literacy is still dominated by the ability of individuals to read and write. The report of the National Reading Panel (2000), formed at the behest of U.S. Congress, reported on research-based

literature that related to the acquisition of early reading skills. The National Reading Panel (2000) reported on several topics that included alphabetics, which included phonemic awareness and phonics, as well as, fluency and comprehension. However, this report was criticised for its absence of topics that included early language development and experiences, as well as, literacy within the assessment process. Joanna Yatvin, a panel member, stated that the panel's investigation of beginning reading was biased and narrow and that the report served to reflect the research interests of the majority of the panel's members and their philosophical viewpoints (National Reading Panel, 2000). While the National Reading Panel (2000) emphasised that it did not report best practice in terms of how to teach reading, the absence of the aforementioned topics contributed to cementing notions of what constituted literacy and the skills considered fundamental in the acquisition of reading.

A second notable occurrence that influenced notions of literacy was the No Child Left Behind Act of 2001 act passed by U.S. Congress. This act sought to ensure that all children received an education that was underpinned by fair and equal opportunities and that all children acquired a minimum level of proficiency on standardised state assessments (U.S. Department of Education, 2004). Within the act, educational organisations and U.S. states were held accountable for increasing the academic outcomes of their students. However, it is clear that the primary focus underpinning the reformations in education within this act, was reading. Meeting the educational needs of young students with reading difficulties was specifically referred to within the act's statement of purpose. Part B of the act explicitly related to grants aimed at improving reading skills to ensure that every student met the requirement of being able to read at grade level by the end of Grade 3 (U.S. Department of Education, 2004). However, this act had unfavourable effects. According to Fox and Alexander (2011), learning to read became equated with attainment in reading on state assessments. This notion was reinforced by the fact that provisions within the act enabled

future funding to be withheld from educational organisations if they were deemed as making insufficient progress in meeting stated purposes that included attainment in reading. Overall, the act strengthened the viewpoint that learning to read involved the transmission of skills to individuals.

The narrowing of literacy to comprising reading and writing skills is also evident in other countries. In England, the National Literacy Project included a framework for reading and writing instruction that included a specified literacy hour that contained three strands that included word-level, sentence-level, and text-level, aimed at the development of reading and writing skills (Department for Education and Employment, 1997). The framework underpinning the long-term plans provided within the *National Primary Framework for Literacy and Mathematics* (Department for Education and Skills, 2006) also reinforced beliefs that literacy primarily comprised reading and writing. The document included a framework for planning that was comprised according to text types. Within the core areas of literacy learning, notable emphasis was placed on developing word-level skills that included word recognition and word structure and spelling (Department for Education and Skills, 2006).

Developing literacy skills is also prominent within statutory documents related to early childhood education in England. The *Statutory Framework for the Early Years Foundation Stage* for children under five years, lists literacy as a compulsory learning area (Department for Education, 2014). Emphasis is placed on students learning sound-letter correspondences and emergent reading and writing skills. The new national curriculum documents for primary aged students names English as one of 11 compulsory subjects (Department for Education, 2016). However, the prominence of reading and writing skills continues. In Year 1, students undergo a phonics screening check that contributes towards decision-making regarding early intervention for reading (Department for Education, 2016).

Tests in Key stage 1 and 2 include reading, as well as, grammar, punctuation, and spelling (Department for Education, 2013). Overall in England, developing reading and writing skills appears to be crucial to conceptions of literacy.

In New Zealand, the Ministry of Education (2009) introduced *The New Zealand Curriculum: Reading and Writing Standards for Years 1 to 8*. Known as National Standards, these standards act as a guide for teachers so that they can ensure students are developing the literacy expertise that enables them to meet the literacy demands of the New Zealand curriculum (Ministry of Education, 2009). However, as the title states, the document is concerned with the development of reading and writing skills. The importance of literacy as reading and writing skills continues within a second document supporting the National Standards and curriculum document, *The Literacy Learning Progressions* (Ministry of Education, 2010a). This document provides descriptive illustrations of important literacy aspects that enable students to meet the demands of the curriculum. However, these literacy aspects are focused on enabling students to meet the reading and writing demands of the curriculum. This narrow focus is also evident in Reading Recovery. The first outcome of Reading Recovery is to accelerate the development of reading and writing skills in students (Ministry of Education Research Division, 2014). The second objective is to identify students who require additional literacy support (Ministry of Education Research Division, 2014). Thus, it is evident that reading and writing and literacy are viewed synonymously within these objectives.

The research contained within this thesis does not set out to narrowly define literacy as the act of reading and the transmission of reading skills. Becoming literate is a highly complex activity that extends beyond reading and writing skills. That said, the dominant role of reading within students' everyday lives cannot be dismissed. Promoting the reading development of students with literacy learning difficulties (LLD) is vital to ensure equitable

access to the school curriculum as well as their ability to access other opportunities in life. As students with LLD progress through the education system additional challenges can emerge as a result of their literacy difficulties.

> The notion that learning to read is different from reading becomes particularly dangerous with older students having difficulty reading, who may be restricted to activities that do not make sense to them in order that they can 'acquire basic skills' (Smith, 1985, p. 125).

Promoting the development of reading skills of students with LLD is even more crucial in the current globalised society. The demand on students to use multiple textual forms, which are represented in diverse ways, form a typical part of students' daily lives (Johnson & Kress, 2009). Thus, while the thesis refers to literacy development, a focus is placed on reading, a facet of literacy that enables students to access and engage in the social world in which they live.

The following sections in this chapter outline literature relevant to the current thesis. It is not possible to provide a review of all theories related to reading acquisition, reading difficulties and psychosocial development. The aim is to provide an overview of theories and to identify areas of debate that are relevant to this thesis in order to provide a framework for subsequent chapters within this thesis. An historical overview of influential theories related to reading acquisition is presented as well as notions around why some children struggle to read and intervention research involving struggling readers. This is followed by an overview of literature relating to the areas of self-esteem, self-efficacy, and resilience. This chapter will conclude with a review of intervention research for students with psychosocial and literacy difficulties.

Theories of Reading Development

Early disparities between notions of reading development were accompanied by debates regarding reading instruction. Traditionally this occurred between educational professionals; however, in the 1950s other interested parties that included scholars, teachers, and writers entered debates (Chall, 1976). Regardless of existing research, the confusion around reading instruction increased. This was accompanied by rapidly changing practices, which included a movement towards novel reading approaches and earlier reading instruction for children (Chall, 1976). Included in this, in the United States, was the 1955 publication of Rudolf Flesch's *Why Johnny Can't Read* that advocated phonics instruction as the only approach to beginning reading instruction. Farrall (2012) noted that while this text was well received by parents, it left educationalists reeling. Similar controversy emerged in the United Kingdom with the publication of texts that advocated phonics in reading instruction. This controversy led Chall (1976) to carry out a critical analysis into current reading programmes.

In her critical analysis, Chall (1976) postulated that learning to read was underpinned by several components that changed as students aged or progressed through the educational system. Chall (1976) viewed that learning to read was developmental in nature, which included the development of grapheme and phoneme associations followed by reading for meaning. Her subsequent model of reading development comprised stages of reading that reflected changes that occurred as a individual became increasingly proficient in reading (Chall, Jacobs, & Baldwin, 1990). Chall's view of reading development was influenced by notable theorists that included Piaget, Kohlberg, Erikson, and Perry; however, she acknowledged it was also greatly influenced by her own research on readability and her findings during the great debate (Chall, 1976). The six stages within Chall's model can be conceptualised in terms of the differential emphasis that is placed on the two fundamental

aspects of reading; word recognition and meaning, within each stage of reading development (Chall et al., 1990).

In Chall's prereading stage (Stage 0) children learn basic notions about reading and writing that include the ability to read signs, name graphemes, write their own name, and pseudo reading of texts. Oral language is developing that a child will bring to their formal education. The length of this stage, from 6 months to 6 years of age, likely reflects the pre-education stage of the child. Stage 1 (initial reading or decoding), which extends through Grade 1 to early Grade 2, is characterised by decoding. Children learn about the relationship between phonemes and graphemes as well as the relationship between spoken and written language. Children can read basic texts and can decode novel monosyllabic words. Chall noted that future reading comprehension would be supported by repeated exposure to lower-level decoding skills and a developing sight word vocabulary within this stage (Farrall, 2012). During Stage 2 (confirmation and fluency) that extends through Grade 2 and 3, children acquire fluency in reading. Automaticity in reading occurs for children when they read texts that comprise language and cognitive processes that match their experiences and abilities, which allows the consolidation of several areas that includes decoding, sight word knowledge, and contextual understandings to occur (Chall et al., 1990). During Stage 3 to 5, the key shift between word recognition and decoding occurs. Learning to read evolves to become reading to learn. Stage 3 (reading for learning the new) involves children, usually from Grade 4 to Grade 8, reading to expand their knowledge, ideas, feelings, and attitudes. However, this typically is restricted to a single viewpoint or a perspective that is derived from a low cognitive demand (Farrall, 2012). Vocabulary becomes increasingly important as texts begin to include more unfamiliar words (Farrall, 2012). The expansion into multiple viewpoints underpins Stage 4 (multiple viewpoints), during Grades 10 to 12. The final fifth stage (construction and reconstruction) that is reached by some, but not all individuals at

adulthood is characterised by reading for a variety of purposes with speed and efficiency. The reader is able to be selective in their choice of text and the depth to which they extract detail as well as developing the ability to synthesise information to create his or her own viewpoint.

As opposed to Chall, whose model of reading development was based on individuals coping with progressively complex language via a series of stages, Ehri (2007) argued that research did not support a model of reading development where each stage was a prerequisite for the subsequent stage. Ehri (2005) argued that phases were a more apt choice because the processes within a different phase may contribute to development within a subsequent phase. While Chall argued that a lack of mastery in a stage would constrain progress between stages, Ehri (2005) contended that reading acquisition did not occur in a linear manner and that mastery in one phase did not necessarily contribute to later reading development. According to Ehri (2005) reading development is underpinned by understanding how beginning readers develop the ability to recognise words with accuracy and automaticity. Inherent in this model is the notion that words can be read in four different ways. The first three ways involve the reading of unknown words via word attack (decoding), analogy, or prediction strategies, with the final way involving the use of memory or sight (Ehri, 2005, 2007; Ehri & McCormick, 1998). Sight words were defined as words a reader had read several times that has been stored in memory; thus, Ehri made a clear distinction between sight words and sight word instruction (Ehri, 2007; Farrall, 2012). Sight word reading was excluded as a reading strategy due to the role of automaticity that occurs unconsciously with sight word reading (Ehri, 2007). Sight word reading occurred when connections between graphemes in words and phonemes in the pronunciation of words are made; thus, sight word reading also involved spelling, pronunciation, and meaning (Ehri, 2007).

While originally offered as a five phase developmental theory (Ehri & McCormick, 1998), this was refined to a four-phase theory of sight word development that was based on

the predominate alphabetic knowledge and understanding being formed when learning to read (Ehri, 2007). The first phase, pre-alphabetic, which occurs largely in pre-school children, is characterised by children reading words via salient visual or contextual cues (Ehri, 2007). These salient clues include contextual and visuographic clues (Ehri, 2007). According to Ehri (2007) contextual clues exist external to the word but are associated by the child with the written word, while visuographic clues are grapheme features of the word but are non-phonemic. Ehri and McCormick (1998) argued that visuographic clues did not foster the development of sight word vocabulary because of the lack of meaning associated with the word. This argument aligned with earlier research by Snowling and Frith (1981) that found that the use of memory of visual cues did not contribute to efficient reading in early readers. Furthermore, children's memory for words is limited during this stage and the recall of words is not related to alphabetic knowledge but rather the strength of the association between the word and the child (Ehri & McCormick, 1998). This association is often arbitrary that influences the transfer of words to memory (Ehri & McCormick, 1998).

Children move towards the partial alphabetic phase as they begin to develop grapheme knowledge and the ability to decode words by forming partial alphabetic cues (Ehri & McCormick, 1998). Children may use the strategy of guessing to read words; however, they are unlikely to employ word attack or analogy strategies due to low alphabetic knowledge (Ehri, 2007). Research found that movement into word reading occurred when there was a shift in processing from visual to phonetic cues (Ehri & Wilce, 1985). They suggested that this involved the recognition of grapheme-phoneme relationships that contributed to preserve associations between spelling and pronunciation within a reader's memory. However, this can result in inaccurate word reading, especially if words share the same letter boundaries. Ehri (1998) later found that these relationships primarily included initial and final graphemes and phonemes. Thus, Ehri and McCormick (1998) argued that

children were unable to use analogy as an effective sight word strategy. While children enter this phase primarily in kindergarten or first grade, research has indicated that several factors may influence the development of this phase that includes the orthography of the language as well as the instructional strategies being employed to teach beginning reading (Ehri, 2007).

Movement towards the full alphabetic phase occurs as students develop the ability to read words through their knowledge of graphemes and phonemes, which strengthens connections between the spelling and the pronunciations of words within their memory (Ehri, 2007; Ehri & McCormick, 1998). Ehri (2007) argued that the transferral of the word to memory decreased the confusion that a reader may have when confronted with words of similar orthography. However, the ability of the individual to learn sight words extended beyond their knowledge of grapheme-phoneme associations to include phonemic segmentation that enables an individual to read words by ascertaining phoneme-grapheme associations within their memory (Ehri, 2007). These abilities underpin the importance of this phase to further developing sight word reading. According to Ehri (2007) having an adequate understanding of grapheme-phoneme associations enables words to be transferred to memory as a sight word, following limited exposures. This understanding is also influential to the development of vocabulary in this phase (Ehri & McCormick, 1998). However, the development of vocabulary is also dependent on decoding ability and the texts that the reader encounters (Farrall, 2012). According to Ehri (2007) decoding also acts as a mechanism for self-teaching vocabulary. The development of grapheme-phoneme associations enables students to develop the ability to use analogy as a strategy for word reading; thus, the effectiveness of this strategy is dependent on the development of decoding abilities (Ehri & McCormick, 1998).

It is mastery in the fully alphabetic phase that enables children to move into the consolidated alphabetic phase (Ehri & McCormick, 1998). However, elements of the final

consolidated alphabetic phase emerge during the full-alphabetic phase, when larger units of grapheme-phoneme correspondences are learned that include morphemic units, onset and rime as well as syllables within mono- and polysyllabic words (Ehri, 2007; Ehri & McCormick, 1998). A reduction in memory load occurs when larger grapheme-phoneme associations are learned and are irregular, although movement into the consolidated alphabetic phase is characterised as occurring when individuals use morphographic connections in sight word reading, or monosyllabic words within multisyllabic words (Ehri, 2007; Ehri & McCormick, 1998).

The developmental theory of reading acquisition proposed by Frith (1985) also follows a phase-like model, similar to Ehri's. Frith's theory was adapted from the cognitive developmental theory of reading acquisition developed by Marsh, Friedman, Welch, and Desberg (1981). Marsh and colleagues contended that reading acquisition occurred over four stages that included specific learning strategies for reading unfamiliar words as well as reading familiar words. These stages included rote learning and linguistic guessing, visual letter cues, sequential decoding, and hierarchical decoding that included the use of analogy. According to Frith (1985), the empirical support for Marsh and colleagues' theory enabled their theory to be adapted to reflect current developmental models of reading acquisition. Frith (1985) argued that structural models of reading acquisition failed to account for some of the complex factors that influenced reading acquisition that included nature-nurture interactions as well as socio-cultural and educational influences. Thus, she acknowledged the social influences proposed by Goodman and others, while also recognising that an explanation of the mastery that occurs in areas that contribute to reading acquisition was required within a developmental model (Frith, 1985).

Frith (1985) offered a three-phase developmental theory of reading acquisition. The logographic phase included a rote learning strategy as well as Ehri's pre-alphabetic phase.

During this phase, readers use salient but few orthographic features in order to read familiar words. The use of phonological skills in this phase is largely redundant, with children relying on the use of context or pragmatics to guess words (Frith, 1985). However, Frith (1985) argued that the logographic strategy of look and say enabled children to develop a substantial sight word vocabulary, which contrasts with Ehri and McCormick's (1998) argument that visuographic clues did not foster the development of sight word vocabulary because of the lack of meaning associated with the word and children's limited memory for words. Controversy also existed as to whether the logographic phase was a prerequisite for reading development. Based on their research, Wimmer and Hummer (1990) concluded that visual cues were simply a default strategy for children who had not developed any phoneme-grapheme understandings within an opaque language and that the use of visual cues was influenced by instructional strategies, which underpin how children are taught to read and write.

In Frith's alphabetic phase, the role of orthography and phonology become more apparent. The development of phoneme-grapheme associations that progresses from simple to context-dependent enables the reader to decode unfamiliar words at the grapheme level (Frith, 1985). Thus, reading attempts may be correct or incorrect. As children move into the orthographic phase, they analyse a word at the orthographic level without phoneme conversion. The orthographic strings of letters may constitute morphemes, rimes, or syllables, which enables these strings to be applied to other words. Snowling and Frith (1981) found that children began to demonstrate abstract orthographic knowledge by around seven years.

Frith (1985) offered clear distinctions between the phases of development. For the logographic and orthographic phases, Frith noted that the orthographic stage was non-visual and involved the systematic use of abstract orthographic knowledge. The orthographic phase was distinguished from the alphabetic phase by the focus on orthographic instead of

phonological cues and the size of units (and types) recognised within the orthographic phase. According to Frith (1985), the strategies were sequential in their development, with subsequent strategies building on prior learning, although the strategies underpinning the logographic and alphabetic phases could be accessed by the reader until abstract orthographic knowledge had developed, at which time the strategies in the earlier phases became mostly redundant. This suggests that abstract orthographic knowledge enables more proficient reading, as opposed to relying on phoneme-grapheme associations and/or visual skills. This was supported by Snowling and Frith (1981) who found that the performance of proficient readers was significantly impaired when orthographic cues were reduced. In contrast, the performance of poorer readers was not. They attributed this finding to the use of inefficient cuing systems or an inability to use reading cues in a flexible manner. Overall, as Frith (1985) acknowledges, her model does not provide insight as to the processes that facilitate the development of subsequent strategies in a novel phase. Neither is any reference given to how literacy development continues to develop in skilled readers beyond the abstract orthographic phase. This is because children who had reached the orthographic phase were not considered by Frith to be struggling in their reading development.

The emergence of the Simple View of Reading (SVR) model by Gough and Tunmer (1986) also occurred during the height of the reading wars. Gough and Tunmer (1986) were primarily interested in the role of decoding in reading. They viewed a skilled decoder as a reader who could read context-free words with speed, accuracy, and silently. Gough and Tunmer (1986) were reluctant to define decoding as word recognition because they argued that decoding implied the application of grapheme-phoneme associations; however, they did recognise that knowledge of grapheme-phoneme associations was instrumental in the development of word recognition. It is noted that this stance on decoding as word recognition changed, when Hoover and Gough (1990) later defined skilled decoding as comprising

proficient word recognition. Decoding was viewed as integral to the reading process, but reading could not be acquired by decoding alone (Gough & Tunmer, 1986). In order for text to be comprehended, there needed to be a translation of the decoded text into language. Thus, the SVR model acknowledged the role of language (linguistic) development in reading. Overall, the SVR model can be viewed as a theory that attempted to bridge the gap between the whole language and decoding debate (Kirby & Savage, 2008).

According to the SVR model, reading (comprehension) is the product of decoding and linguistic (language) comprehension (R = D X C) (Gough & Tunmer, 1986). The importance placed on reading being the product of decoding and linguistic comprehension reinforced the importance of the interaction between the two variables in reading (Kirby & Savage, 2008). Linguistic comprehension was defined as the process by which word-level information, sentence-level, and discourse information was processed, which without reading could not occur (Gough & Tunmer, 1986). Within the SVR model, once the decoding of text has occurred, the reader would use the same processes that he or she would use to understand spoken language in order to understand the text (Gough & Tunmer, 1986). As they acknowledged, this notion was controversial. According to Nation (2007) important differences existed between the skills required to read and the skills required to listen that underpinned linguistic comprehension. The SVR model was viewed as being somewhat reductionist whereby the complexity of reading acquisition was ignored within the framework of the SVR model that focused on the proximal influences on reading acquisition (Kirby & Savage, 2008). According to Silverman, Speece, Harring, and Ritchey (2013) the decoding construct comprises two skills (accuracy and automaticity) that function together for younger readers, but separately for older readers. However, as Hoover and Gough (1990) noted, the SVR model only posited that the complexity of the reading process could be viewed in two parts and that both parts were equally influential in reading.

A substantial amount of research has taken place in the 30 years since the SVR model was first put forward. Much research has resulted in strong support for this model (see Kirby & Savage, 2008). One area of the SVR model that has been contentious is whether the decoding and linguistic comprehension components in reading are multiplicative (D x C) or additive (D + C). This argument is dependent upon whether reading is viewed as being dependent upon both components (D X C) that hold equal value, or whether one component (D + C) is sufficient for reading to occur, which would indicate that decoding and linguistic comprehension can hold different values (Kirby & Savage, 2008). Hoover and Gough (1990) argued that the additional proportion of variation found in their research supported a multiplicative framework; however, as they acknowledged, the results also validated an additive framework (R = D + C). Chen and Vellutino (1997) argued that a multiplicative framework was difficult to validate unless samples contain individuals who hold either no decoding or no linguistic comprehension. Chen and Vellutino (1997) proposed that a linear and multiplicative framework (R = D + L + D x L) was more advantageous because it recognised the additive nature of decoding and linguistic comprehension, while also recognising that, at times, a multiplicative framework could add unique variance to reading. Their findings also implicated age/grade level as an influential factor in the SVR model. This is because the correlations between decoding and reading decreased as a result of grade level, while the correlations between linguistic comprehension and reading increased (Chen & Vellutino, 1997). The concept of an additive framework with a possible multiplicative variance has been supported in recent research (see Savage, 2006; Savage & Wolforth, 2007).

Why Some Students Struggle to Read

Rayner, Foorman, Perfetti, Pesetsky, and Seidenberg (2001) wrote that learning to read is a paradox. For many adults reading is effortless and automatic, which means that reading may be viewed as a natural act. As such, it could easily be assumed that the

acquisition of reading occurs with ease. However, reading is far from a natural act. For some children, reading presents itself as an extremely difficult and challenging process, which can extend over many years. International statistics for children's levels of literacy development have indicated large disparities between skilled and less skilled readers that have been largely constant since 2001 (Mullis, Martin, Foy, & Drucker, 2012; Tunmer, Chapman, Greaney, Prochnow, & Arrow, 2013). The latest Programme for International Student Assessment (PISA) results, published in 2016, indicated that across member countries of the Organisation for Economic Cooperation and Development (OECD) 18 % of 15-year old students were low performers in reading (OECD, 2016). This equated to nearly three million students. Furthermore, the data indicated that students who were low in reading were also more likely to also demonstrate low progress in mathematics and science (OECD, 2016). This indicates that literacy levels are likely to be influential to the performance of students in other curriculum areas and that this occurs across OECD countries.

New Zealand statistics also indicate that many young New Zealand students are experiencing difficulties in their reading development. The latest annual monitoring report for Reading Recovery, using the 2013 school-year data, indicated that 11 057 students participated in Reading Recovery that included 2 527 students who had not completed the programme within the previous 2012 year (Ministry of Education Research Division, 2014). These students were those identified as making below expected progress in literacy development in the first year of formal schooling. In 2013, of the students who participated in this early intervention, 59 % or 6 434 students successfully completed Reading Recovery by demonstrating gains in their reading achievement to a similar level of their peers, while 1 055 (9.7 %) students were referred onwards for specialist or long-term reading support (Ministry of Education Research Division, 2014).

Debate regarding the efficacy of Reading Recovery sits outside this thesis; however,

there are noticeable and concerning trends within the latest Reading Recovery data, in relation to young children with reading difficulties. Firstly, the average hours of support required to accelerate student's reading development has noticeably increased between 2004 and 2013, from 36.8 hours to 48 hours per student. This suggests that the literacy difficulties presented by younger students may be increasing in severity or the reasons underpinning why students are struggling to acquire reading skills are not being met by the current intervention. Secondly, entry scores have also gradually increased. This may be attributed to some children that may be harder to teach being excluded from the Reading Recovery programme. The figures of participating students also are viewed with caution because it is likely that the number of young students struggling with their literacy development is greater than the report indicates. This is because only 76 % of six-year old students are enrolled at schools that offer Reading Recovery. Furthermore, higher decile schools (rated 8 to 10) are more likely to offer Reading Recovery, in comparison to mid decile schools (rated 4 to 7) or low decile schools (rated 1 to 3). Decile ratings represent the socio-economic status of a school's community in New Zealand, which is used by the Ministry of Education to fund state and state integrated schools (Ministry of Education, 2015b). In 2013, 1 in 6 students entered Reading Recovery from low decile schools, in comparison to 1 in 10 students from high decile schools. Reading Recovery is in greater demand in low decile schools; however, the access to Reading Recovery is lower than for high decile schools, due to both an increased need for the intervention and fewer schools offering the intervention.

The lack of access to Reading Recovery and questions regarding the efficacy of the intervention over the long-term (see Chapman, Tunmer, & Prochnow, 2001) may be one reason why the reading performance of older New Zealand students is of concern. Students in Year 5 (4^{th} Grade) have been reported as demonstrating significantly lower reading performance than 20 other OECD countries (Mullis et al., 2012). Data from the latest PISA

research indicated that out of 59 118 New Zealand students enrolled in secondary school, 9 619 were low performers in reading (OECD, 2016). An enquiry into the New Zealand educational system by the Education and Science Committee of Parliament in 2006 cited a report indicating that a many as 20 % of students were struggling to learn to read (Tunmer et al., 2013). An earlier enquiry by the same aforementioned committee had resulted in 51 recommendations to the Government that advocated for a review of how reading was being taught in schools (New Zealand House of Representatives, 2001). The recommendations included incorporating phonetics and word-level decoding skills into literacy education. However, the government mostly rebuffed these recommendations in support of the use of contextual cues to develop reading skills that had been advocated by an earlier taskforce on literacy (Tunmer et al., 2013). This suggests that instructional strategies may also be an influential factor in why some students struggle to read in New Zealand.

Understanding why some students struggle to read can be discussed by viewing reading difficulties within a categorical and dimensional framework. Within the categorical approach, individuals either have or do not have reading difficulties (Committee on the Prevention of Reading Difficulties in Young Children, 1998). This approach was used to determine, for example, dyslexia, in which children demonstrated a discrepancy between their levels of achievement and their IQ. According to the Committee on the Prevention of Reading Difficulties in Young Children (1998) categories enabled distinctions to be drawn between different types of reading difficulties, such as dyslexia and broader reading difficulties, commonly referred to as garden-variety poor readers. However, the committee noted that these categories resulted in the conceptualisation that reading difficulties differed from the normal acquisition of reading, a concept that was challenged by research findings. Other criticisms included the use of IQ tests for categorisation that placed limitations around an individual's learning potential as well as the variation in methodology that meant that

some children with reading difficulties could be excluded from receiving services (Lyon et al., 2001; Spear-Swerling, 2004).

In comparison, the dimensional model posited that reading difficulties exist within the normal distribution of reading abilities and that variables such as genetics, cognition, and instructional factors are influential to reading development (Committee on the Prevention of Reading Difficulties in Young Children, 1998). Reading difficulties were viewed as being situated at the lower tail of the normal distribution scale. The dimensional model is also problematic because of the fact that, like with the categorical model, distinctions were still drawn between different types of reading ability. The committee also noted that the classification of readers into different types of readers was arbitrary, especially if underpinned by criteria that included or excluded the existence of reading difficulties in individuals. While both models drew distinctions around different types of readers, Spear-Swerling (2004) and Lyon et al. (2001) noted that the early identification of struggling readers was inhibited by classification criteria, which was essentially a wait-to-fail model. Furthermore, classifying different types of readers provided little insight into how to assist these children in their reading development.

A more apt way of understanding why some children struggle to read is to view reading difficulties in light of the aforementioned theories of reading acquisition that emerged within the era of the reading wars. According to the whole language movement students learn through and about language by engaging with real-life situations (Taylor, 2007). Goodman and colleagues proposed that reading developed via a process that was dependent upon the interaction of the graphophonic, syntactic, and semantic systems (Rassool, 2009), however, differential emphasis was placed on these systems. The graphophonic system is activated as the reader searches his or her long-term memory for cues (Goodman & Burke, 1973). Only the semantic and syntactic processes are used to support

subsequent comparison of selected cues and the testing of choices necessary for decoding and meaning within Goodman's model of reading. Research by Goodman and Burke (1973) found that poorer readers demonstrated a greater reliance on graphic information and that some children were more likely to provide miscues that were phonetically similar to the target word. Thus, struggling readers were more likely to use the graphophonic system to process text when difficulties in word decoding arose. However, this use was unsupported in a model that advocated for the use of syntactic and semantic systems over the graphophonic system. Poorer readers are less likely to be able to use contextual redundancy effectively when processing sentences, which is the very process that underpins Goodman's model of reading acquisition (Tunmer & Chapman, 1998).

Opponents, mainly those against whole language, raised concerns regarding the efficacy of contextual redundancy in reading development. Research has indicated that contextual redundancy is most often depended upon for content words that are the least familiar in a sentence; however, these words carry the most meaning, as opposed to function words that are usually highly predictable but carry little meaning for the reader (Share, 1995; Tunmer & Chapman, 1998). Share (1995) argued that contextual information was only effective when the reader applied it to solve or confirm decoding attempts. However, because graphophonic cues are only taught for purposes of confirming language predictions and are taught on a limited basis, then it is less likely that readers who struggled (and whom Goodman and colleagues found rely on graphophonic skills) will be able to use these skills effectively in order to confirm predictions and ultimately gain meaning. Research has also indicated that the effectiveness of contextual redundancy decreases with age and grade/year level, reading level, vocabulary as well as text familiarity (Stanovich, 1980). Contextual redundancy is likely to be less effective as children who struggle to read are confronted with more complex texts as they move through the education system. Students who struggle to

read are likely to be assigned to lower-level texts during instructional reading in order to develop contextual redundancy in their reading. However, developing contextual redundancy skills requires texts with repetitive sentence structure and familiar vocabulary in order to facilitate predictability (Tunmer & Chapman, 1998). Also, low-level texts do not facilitate the acquisition of vocabulary that has been implicated in the development of both decoding and reading comprehension (Adolf & Perfetti, 2014; Stanovich, 1986).

Students within the whole language model of reading tend to rely on the (largely ineffective) graphophonic system due to difficulties with contextual redundancy. An alternate viewpoint is that deficits in word-level skills increases the emphasis that struggling readers place on other contextual factors to assist with word recognition (Stanovich, 1980). Nation and Snowling (1998a) found that children with dyslexia used contextual cues more than typical readers and poor comprehenders. They argued that the emphasis on contextual facilitation was a compensatory strategy for students that enabled them to compensate for deficits in their phonological knowledge. More able readers rely on contextual factors to a lesser degree because they utilise word-level skills more effectively (Tunmer & Chapman, 1998). Tunmer and Chapman (1998) argued that struggling readers should be encouraged to develop word-level information as opposed to emphasising the use of contextual cues. They further argued that word-level skills should be targeted through the development of orthographic and phonological representations, in order to facilitate the development of sight words and automatic retrieval from mental lexicons. However, Share (1995) previously found that struggling readers often placed greater reliance on using orthographic features to decode unknown words in order to compensate for lesser developed phonological skills. This suggests that deficits in phonological skills underpin the reason as to why some students struggle to read. The importance of phonological awareness in reading has been well supported by research. Gough and Tunmer (1986) proposed that low phonemic awareness

was prominent in individuals with dyslexia, which was demonstrated through a lack of decoding skills. The importance of word-level information in reading acquisition has substantial support within models of reading development. Developing phoneme-grapheme associations is evident within Chall's initial reading stage, Ehri's partial alphabetic stage, Frith's alphabetic stage, and the decoding component of the SVR model.

Understanding why some students struggle to read can be viewed within the framework of the SVR model that posits that reading is the product of decoding and linguistic comprehension (R = D X C). Difficulties in reading would be reflected via a dissociation between decoding and linguistic comprehension (Hoover & Gough, 1990). One reason as to why a child could struggle to read is a lack of decoding skills (Gough & Tunmer, 1986). However, Hoover and Gough (1990) cautioned against simply targeting decoding in struggling readers because increases in decoding skills will not be reflected in increases to reading (comprehension) due to the fact that newly decoded words would not be present in the mental lexicon of the reader. Perfetti (2007) also noted that increases in decoding skills did not necessarily translate to increases in reading. According to Perfetti (2007), equating speed with decoding failed to acknowledge the role of knowledge in skilled reading. While Hoover and Gough argued that it was the presence of the word in the mental lexicon, Perfetti (2007) argued that it was the quality of lexical connections that underpinned the efficiency of decoding. This is because it is efficiency that is the rapid retrieval of word identities from the lexicon, which represents both form and meaning that influences comprehension.

The second reason why students may struggle to read is due to hyperlexia. Hyperlexia occurs when a reader demonstrates an average or inferior level of linguistic comprehension but demonstrates superior decoding skills (Gough & Tunmer, 1986). Gough and Tunmer (1986) concluded that children with hyperlexia read as well as they listen. This argument was supported by Rayner et al. (2001) who stated that reading enabled individuals to understand

written language to the same degree as they understand spoken language. The association between linguistic comprehension and reading comprehension has been supported by research (Catts, Adlof, & Weismer, 2006; Nation & Snowling, 1997, 2004; Wise, Sevcik, Morris, Lovett, & Wolf, 2007). In contrast to their stance on targeted decoding, Hoover and Gough (1990) proposed that targeting linguistic comprehension would increase the reader's capacity for reading; however, this was dependent upon an improvement in decoding skills. Necessary improvements in decoding skills in children with hyperlexia suggests that this population may not demonstrate superior decoding abilities (Gough & Tunmer, 1986). It also indicates that within the SVR model, Hoover and Gough considered decoding skills to be of prime importance to the development of reading. This somewhat challenges their multiplicative stance.

According to Gough and Tunmer (1986) children also struggle to read is if they demonstrate low proficiency in decoding skills and linguistic comprehension, often referred to as garden-variety poor readers. These readers primarily experience difficulties in reading acquisition at the early phases (Spear-Swerling, 2004). However, the reading profiles of garden-variety poor readers may change over time because these readers may not demonstrate deficits in comprehension until the demands of texts increase. Furthermore, because reading comprehension is dependent upon having decoding abilities, difficulties in word-reading skills are likely to be evident from early on. Spear-Swerling (2004) noted that it might not be until word-level skills are remediated that difficulties in reading comprehension are demonstrated, due to the interaction with linguistic comprehension.

According to Nation (2007) the multiplicative framework of the SVR model also indicated that an individual could struggle to develop reading comprehension, as a product of interaction between decoding and linguistic comprehension. She argued that the difficulty lay in determining exactly how a reading comprehension difficulty occurred because it could

arise from a difficulty in decoding and/or linguistic comprehension. Perfetti, through his verbal efficiency theory, had proposed that reading was about the efficiency of processing mechanisms (Van Dyke & Shankweiler, 2012). Children who demonstrated difficulties in decoding were likely to assign resources to word-level processes, while more skilled readers could assign resources to comprehension processes (Perfetti, 2007). Perfetti acknowledged that this hypothesis conveyed the notion that increases in word identification would result in increases in reading comprehension, which was contested by researchers such as Oakhill and colleagues (Nation, 2007). However, Perfetti (2007) argued against efficiency and speed/accuracy being viewed synonymously. He argued that efficiency was underpinned by the specific lexical representations that a reader held that enabled them to retrieve word identities and their meaning, within a specific context. As such, poor comprehenders would need to decode with similar efficiency to skilled readers (Perfetti, 2007). This was supported in research. Nation and Snowling (1998b) found that students with comprehension difficulties read non-words as well as typical readers. Their research found that poor comprehenders made more reading errors than typical readers, in low-frequency exception words, as well as, reading fewer low-frequency words. This suggests that low comprehenders may exhibit some deficits in specific decoding areas, such as low-frequency words.

The lack of finding regarding the role of decoding in poor comprehension resulted in an emphasis being placed on the role of linguistic comprehension in comprehension difficulties. The association between linguistic comprehension and reading comprehension has been supported by research. Nation and Snowling (1997) found that students with poor comprehension performed less well than typical readers in linguistic comprehension. They also found that poor comprehenders read single-words less accurately than typical readers, and read texts significantly less accurately, indicating that difficulties in linguistic comprehension were more evident at text level. Nation (2007) concluded that a

comprehension difficulty involved reading, as well as, general language comprehension. While it could be argued that difficulties in language comprehension may not be considered a reading difficulty, Nation (2007) argued that children with dyslexia often perform less well on tasks assessing oral language involving phonological skills and whether a causative or consequence of a language difficulty, children with dyslexia still had reading difficulties. Nation inferred that poor comprehenders be viewed in the same manner.

In Summary

For some children the development of reading skills is a difficult and challenging process. These difficulties continue to exist regardless of the emergence of laws and policies aimed at ensuring children acquire the skills that enable them to become a proficient reader. There are multiple skills that are crucial to the acquisition of reading skills. The aforementioned theories of reading development indicate that reading is dependent on the ability of the individual to decode text and their knowledge of language systems. The main debate between theories of reading acquisition lie in whether decoding or word recognition is viewed as developing at word-level via phoneme-grapheme correspondences or at text-level via syntactic and semantic cues. The whole language theory of reading development has been posited as ignoring the role of phonology and its orthographic representation in reading acquisition (Liberman & Shankweiler, 1991). However, this is inaccurate. Goodman's theory of reading development did acknowledge the use of the graphophonic system in reading; however, this played a minor role in comparison to semantic and syntactic cues within the reading process. Overall, research indicates that word-level skills play a more critical role in the reading process than contextual cues, regardless of the ability of the reader in terms of their word-level skills.

The importance of word-level skills in reading shifted the focus towards

understanding the critical factors underpinning its development (Stanovich, 1991). The aforementioned theories of reading development noted the importance of the ability of the individual to hear phonemes within words. According to Ehri (2007), phonemic segmentation underpins the ability of individuals to read words using phoneme-grapheme associations. Share (1995) argued that a reliance on orthographic cues might be due to deficits in phonological processing. The development of phoneme-grapheme associations is influential to the development of sight word vocabulary and the ability of an individual to automatically retrieve words from his or her mental lexicon. Phoneme-grapheme associations are instrumental to the development of morphemic awareness (Ehri & McCormick, 1998). The development of morphemic or morphological awareness facilitates the development of reading comprehension, due to the reduction of cognitive load at word-level (Apel, Diehm, & Apel, 2013; Kirby et al., 2012). This is because morphemic knowledge can be applied at text-level to decode and comprehend multi-morphemic words.

Linguistic comprehension is also influential in the development of reading and is clearly demonstrated within the SVR model. Linguistic comprehension plays a primary role in facilitating the understanding of the association between spoken and written language. It influences the ability of a reader to efficiently retrieve words from his or her lexicon when reading, as well as, in developing vocabulary. Deficits in linguistic comprehension affect the development of reading in two ways, via hyperlexia or general language difficulties. While targeting linguistic comprehension can increase language capacity, this is less likely to lead to gains in reading without a decoding focus (Hoover & Gough, 1990). Poor comprehenders read single-words less accurately than typical readers and make more errors in low-frequency exception words (Nation & Snowling, 1997, 1998b). Hoover and Gough (1990) also reported that targeting linguistic comprehension was unlikely to lead to gains in reading without a focus on decoding because it would be less likely that the newly decoded word would be

present within the reader's mental lexicon, which was required in order for comprehension to occur. Difficulties in linguistic comprehension and general language difficulties are likely to be associated with difficulties at word level.

Reading Interventions-A Brief Overview

Much literature exists that outlines the phases that children progress through on the journey to acquiring reading skills. Within this literature is the recognition that some students struggle in their reading development. This recognition has resulted in the emergence of two types of programmes aimed at countering reading difficulties. The first type includes programmes that seek to remediate or intervene in reading difficulties. The second type includes programmes that seek to prevent the emergence of reading difficulties. According to Pikulski (1994) more funding is given to the remediation of reading difficulties in comparison to that given to the prevention of reading difficulties. This suggests that a reactive or wait-to-fail approach is mainly adopted in the remediation of reading difficulties in children that may be related to early categorical or dimensional determinations of reading difficulties. However, research indicates that difficulties in reading are often preventable in early readers, primarily through effective classroom teaching (Committee on the Prevention of Reading Difficulties in Young Children, 1998; Spear-Swerling, 2004).

Interventions emerged alongside a focus on categorising learning difficulties, with the aim of remediating learning difficulties (Vaughn, Gersten, & Chard, 2000). Many early interventions were proven to be ineffective, until fundamental changes to the composition of interventions occurred in terms of design, implementation, and evaluation (Vaughn et al., 2000). Early intervention is the term used for intervention within early childhood education. However, it also refers to intervention within a child's early formal education (Pikulski, 1994), which has become paramount because research into reading suggests that the

remediation of difficulties becomes increasingly difficult beyond Grade 2 (Lyon et al., 2001; Pikulski, 1994). Furthermore, the prevalence of reading difficulties in schools is commonplace (Snowling & Hulme, 2012), which means that both prevention and intervention are important within the school context. As Torgesen (1998, p. 32) stated "children who get off to a poor start in reading rarely catch up".

Current interventions for literacy difficulties are mainly based on two approaches that relate to teaching and learning (Vaughn et al., 2000). The first approach includes interventions based on behavioural models. The second approach includes interventions evolving from cognitive approaches. Programmes have emerged from multiple sources that include research-based, action research as well as observations from those who frequently observe reading difficulties. The majority of research has involved determining the effects of interventions in terms of remediating reading difficulties (Vaughn et al., 2000). Current literature indicates an increasing focus on response to intervention (RTI). The use of RTIs that contain multiple tiers of intervention may have given rise to multi-component interventions (Grills et al., 2014; Pullen, Tuckwiller, Konold, Maynard, & Coyne, 2010; Ritchey, Silverman, Montanaro, Speece, & Schatschneider, 2012; Roberts et al., 2015). Interventions may also include an additional focus, such as anxiety (Grills et al., 2014), attention (Roberts et al., 2015), and academic motivation (Zentall & Lee, 2012). Another viewpoint espouses that research should focus on identifying the factors that influence programme outcomes, with the aim of improving or contributing to the development of interventions (Pikulski, 1994; Vaughn et al., 2000).

Determining the efficacy of interventions is complex. This is because difficulties in developing reading skills can result in spinoffs that often have reciprocating effects, which further affects a child's ability to develop reading skills (Stanovich, 1986). The acknowledgement of causal or consequential factors has been largely absent in early

intervention programmes. However, these factors may underpin the multitude of individual differences that have been found to exist between different types of readers (Stanovich, 1986). Individual differences in children with reading difficulties also increase as children progress through the educational system, largely due to reciprocal effects. The remediation of reading difficulties in students is likely to become more complex with age. Furthermore, the cognitive demands placed on students increase as they progress through the education system, which places additional demands on students' decoding, linguistics, and comprehension abilities (Wanzek et al., 2013). For older students, remediation extends beyond the factors commonly implicated in reading difficulties to also include spinoff effects such as vocabulary, concept knowledge, comprehension strategies as well as psychosocial aspects (Edmonds et al., 2009; Vaughn et al., 2008). That said, literature indicates that reading interventions for younger students are also focusing on the spinoff effects. Grills et al. (2014) included instruction in phonics, word study, reading comprehension, word-level skills, and fluency in their reading intervention for a sample of Grade 1 students. Similarly, Case et al. (2010) included instruction in phonemic awareness, word-attack skills, vocabulary, fluency, and comprehension in their reading intervention for Grade 1 students. Pullen et al. (2010) also focused on vocabulary development in Grade 1 students. This suggests that spin-off effects may be evident earlier than traditionally thought.

While the remediation of reading difficulties appears to be more complex beyond Grade 2, there is increasing evidence of interventions with older struggling readers. According to Vaughn and colleagues (2008) interventions for older students are as equally effective, if not more effective, than intervention studies involving younger readers, although intervention effects are more inconsistent. In their meta-analysis of one-to-one interventions, Elbaum and colleagues (2000) reported effect sizes ranging from - 0.37 to 3.34. They noted that for some students, involvement in interventions had resulted in negative outcomes.

Wanzek et al. (2013) reported small effect sizes, ranging from 0.10 to 0.16, for interventions targeting students beyond Grade 3 in areas such as word reading accuracy, reading comprehension, spelling, and fluency. They concluded that interventions could have a positive effect on older students and that the quality of the studies was extremely high. However, these interventions were extensive. Some interventions ranged from 68 to 111 hours and the duration of the interventions was highly variable, ranging from 2 to 23 months, with sessions ranging from 5 to 90 minutes. Overall, the remediation of reading difficulties in older students is highly complex and may need to occur over an extended period of time. It is evident that multiple factors must be considered that relate to literacy, and that consideration should also be given to other factors that exert an influence on reading difficulties, such as psychosocial development.

The Importance of the Self and Psychosocial Development

Notions around the self are deeply embedded within a historical context. The interest that individuals have held regarding the self can be traced back to Greek philosophers whom made reference to knowing thyself (Baumeister, 1987; Harter, 2006). However, there also exists a discernable lack of concern for the self in the later historical era of the high middle ages (c. 1001-1300), which led to the conclusion that knowing thyself has not been a constant struggle for individuals throughout history (Baumeister, 1987). However, the self has once again become of key interest for mankind in Western societies. This renewed interest was the result of changes that were occurring to the human condition, beginning in the late medieval period (c. 1300) (Baumeister, 1987). Changes to the human condition were based around quandaries, such as identity, the relationship between the individual and society, personal potential and fulfilment, and self-knowledge (Baumeister, 1987).

These quandaries were indicative of advances in human development and social change that resulted in changes to the conceptualisation of the self. Within traditional societies, notions of the self were derived from membership in social groups (MacIntyre, 2007). However, the self was not fixed or static in nature because the development of the self occurred over the life of the individual, as he or she progressed towards an end via a series of objectives (MacIntyre, 2007). It was only at death that an individual could be judged as happy or unhappy, which gave rise to the Greek proverb "call no man happy until he is dead" (MacIntyre, 2007, p. 34). The self was viewed in an objective and impersonal manner (MacIntyre, 2007) as well as being inextricably linked to an individual's social realm. Thus, the self was cognitively constructed because the objective and impersonal evaluations negated any involvement of an affective or emotive component. Furthermore, this era espoused the unity of life, with little recognition of self-knowledge, or indeed even the differing of perspectives (Baumeister, 1987). However, the objective and impersonal conception of the self has disappeared in modern society (MacIntyre, 2007). Dissatisfaction with the self being defined in its totality, via an individual's social identity and being ordered until one's death gave way to a self that is constructed within an individual that includes an emotive component (MacIntyre, 2007). Individuals make causal contributions regarding their personal agency within their experiences (Bandura, 1997); thus, the self is cognitively and socially constructed and includes evaluative and affective components.

The quest for personal fulfilment is paramount in contemporary society, as individuals seek to distinguish between their inner and outer self and as individuality becomes increasingly valued (Baumeister, 1987). The increased interest in the self has enabled advanced understandings of human development and social change to be recognised and acknowledged (Baumeister, 1987). The need to measure one's psychosocial development has surged. Interest in the self has risen to the degree that it is viewed as a commodity and is

inextricably linked to the everyday lives of individuals (Harter, 2012b) as they desire to comprehend experiences (Harter, 2006) and exert control over events to achieve preferred outcomes while averting less desired outcomes (Bandura, 1997).

Historically, control was believed to be extrinsic to the individual and was based in collective rituals or codes of conduct that sought to either favour or appease the supernatural, with whom control resided (Bandura, 1997). The knowledge growth within society resulted in the movement to intrinsic notions of control (Bandura, 1997). Individualistic notions of control resulted in a major shift in causal thinking (Bandura, 1997). Human knowledge was viewed as a vital means by which individuals could understand their own experiences (Harter, 2006). This placed the individual and their self at the fore in terms of controlling their own outcomes and as such their own lives (Bandura, 1997). Knowledge growth and the desire for intrinsic control extends across the lifespan (Bandura, 1997). This may be why the renaissance of interest in the self has occurred across multiple domains that include psychology, medicine, law, and education (Harter, 2012b). These fields have all put forward measures designed to capture the construct of the self. Within these contributions it is evident that the self is not a unitary construct but is implicated in a plethora of manifestations (Harter, 2012b) that include self-perceptions, self-worth, self-concept, self-evaluation, self-respect, self-confidence, self-image, self-esteem, and self-efficacy. These manifestations, or self-systems (Tunmer & Chapman, 2003), comprises what is either termed as psychosocial or socio-emotional development. For this thesis, the term psychosocial development is used.

The multiple manifestations that comprise the self are important in terms of understanding the human condition and personal agency; however, this has resulted in inconsistencies within literature in terms of how psychosocial development is conceptualised and defined. While the distinction between some areas of psychosocial development, such as self-esteem and self-efficacy, are more evident within literature, the distinction between other

areas that includes self-concept and self-esteem are less evident. Some researchers, including Cosden et al. (1999) and Humphrey (2004) have drawn distinctions between self-concept and self-esteem, by viewing self-concept as a cognitive understanding that an individual has about their abilities; whereas, self-esteem included affective and evaluative components. In these conceptualisations, self-perception and self-worth appear to be subsumed within the self-concept and self-esteem constructs. However, others including Dyson (2003) and Ferla, Valcke, and Cai (2009) defined self-concept as containing an evaluative component. An evaluative component is clearly evident in Harter's *Self-Perception Profile for Children* (Harter, 2012b). However, the theoretical background and rationale for this self-perception profile are underpinned by references to self-concept and self-esteem (Harter, 2012b). Marsh and Craven (2006) argued that distinctions between these two concepts lacked empirical support. However, Marsh and Martin (2011) later cited the distinction as relevant, with differences in terminology being primarily used to distinguish between global self-esteem and domain-specific areas of self-concept such as academic self-concept (Marsh & Martin, 2011; Trautwein et al., 2006). Overall, the terms self-concept and self-esteem are often used interchangeably within literature. According to Ridsdale (2004), self-esteem can be conceptualised as an isomorphic form of self-concept, which provides one explanation as to why these terms are often used synonymously. For this thesis, the term self-esteem is used to align conceptions of global and academic self-esteem. Research relating to both self-esteem and self-concept is considered. Other areas of psychosocial development that included self-worth and self-perceptions appear to be subsumed within the constructs of self-concept and self-esteem and will not be considered as individual constructs.

Theories of Psychosocial Development

Self-esteem.

Early notions of self-esteem largely derive from the early work of William James (1890) who questioned the notion of a unified self, which he termed me. James (1890) argued that it was difficult to draw distinctions between the notion of me and the notion of mine. An individual could place the same importance on his or her fame, children, and/or work, thus, considering them as part of the Me-self. Harter (2006) characterised the Me-self as comprising the material, social, and physical selves. However, aspects of the selves underpinning the Me-self could also be forsworn that meant the constituents would cease to be part of the individual's me and become part of the individual's mine, known as the I-self. James (1890) recognised that the self was comprised of multiple but fluctuating dimensions. The Me-self could be viewed as an empirical aggregate of the known (James, 1890). In contrast, the I-self, which knows the Me-self, was related to the individual's consciousness. James (1890) termed the I-self as a thought; that is, a moment in time that differed from the previous moment but was fitting of the associated latter moment. Thus, the I-self was heavily associated with cognition and the state of mind (James, 1890).

James' conceptualisation of the self was underpinned by a multi-dimensional concept of the self. The difficulty in empirically researching the I-self, which was largely due to difficulties in defining this existential form of the self (Harter, 2006; Lewis & Brooks-Gunn, 1979), contributed to an emphasis being placed on developing understandings about the Me-self (Harter, 2006). This accounts for why early constructs of self-esteem were theorised as only comprising a single dimension. In literature, this is often referred to as a nomothetic position (Byrne, 1984), in which an overall viewpoint of self-esteem was developed for individuals. This overall viewpoint is often referred to as global self-esteem.

It is contentious as to what exactly constitutes global self-esteem. Early conceptions of global self-esteem were solely used to explain individuals' behaviour within various contexts (Byrne, 1984). Byrne conceptualised global self-esteem as comprising one's perceptions of him or her self that included attitudes, feelings, and knowledge. Rosenberg, Schoenbach, Schooler, and Rosenberg (1995) defined global self-esteem as an individual's overall attitude towards him or her self. Like Byrne, Rosenberg and colleagues acknowledged the role of affect and cognition, which they argued were constituent components of attitude. Others, such as Park and Crocker (2013), viewed global self-esteem as being related to an individual's response to positive or negative outcomes. Generally, global self-esteem was argued by these researchers as the impetus driving behaviour (Byrne, 1984).

In contrast, Robins, Hendin, and Trzesniewski (2001) proposed that global self-esteem was developed via an individual's self-evaluations, but these were not necessarily based on specific behaviours. Burden (2010) viewed self-esteem as developing as a result of how an individual feels about his or her self-perceptions with an individual's overall self-image emerging as one evaluates their perceptions of themselves. Lawrence (2006), Pollak (2009), and Riddick (2010) argued that alongside an individual's overall self-image exists an ideal self (who he or she wants to be) that develops as a result of interactions with significant others. According to Harter (1999), the development of self-esteem is strongly influenced by the discrepancies that emerge between an individual's aspirations and his or her actual achievements. For these theorists, self-esteem emerges as a result of the evaluations that an individual makes of his or her existing self-image against their socially constructed ideal self. Overall, global self-esteem appears to involve two integral components. The first component includes the individual and their interactions; that is individual's perceptions of experiences within their social world. The second component involves the evaluation that an individual makes of one's interactions or experiences. The evaluative component appears to involve

cognitive and affective components as well as being heavily influenced by the perceptions formed by the previous experiences of an individual. It is here where notions around the development of self-esteem become contentious.

Conceptions of global self-esteem have been strongly influenced by previous research and accompanying methodology within varied domains. As such, conceptions of self-esteem can be underpinned by differing and, at times, conflicting discourses. Early research into self-esteem lacked a disciplinary basis, which was demonstrated by shortcomings in terms of theoretical basis, research design, and low quality measures (Marsh, 1990). Researchers often failed to operationally define self-esteem, instead adhering to the view that all individuals held the same understanding of what constituted self-esteem (Marsh, 1990). The failure to clearly conceptualise self-esteem has lead to many misunderstandings and inaccurate conclusions within research (Rosenberg et al., 1995).

While differences in the conceptualisation of global self-esteem exist, the cognitive and social underpinnings of James' self have remained influential. The cognitive underpinning has firmly entrenched self-esteem within a developmental trajectory, largely influenced by the trajectory of cognitive development espoused by theorists such as Piaget and Kelly (Harter, 2006). The social underpinning has resulted in the notion that self-esteem can be influenced by an individual's interactions with significant others, as an individual forms perceptions of their experiences via evaluative judgements. This has given rise to the notion that individual differences are influential in the development of self-esteem (Harter, 2006). Recent research has focused on the I-self within self-esteem, although this has largely been discussed within the area of self-development. The focus on the I-self has contributed to increasing understandings to the role that changes in cognition, which underpin the I-self, exert upon the Me-self, at different developmental stages (Harter, 2006).

Increased understandings have led to criticisms relating to conceptions of self-esteem. One notable criticism concerns the normalisation of the idea that individuals are motivated to maintain high levels of global self-esteem (Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004). According to these authors, this idea has been widely postulated within research, without any recourse or justification. The universality of this idea has been challenged by tenets within cultural and social psychology. Within these psychologies, culture and the development of the self are inextricably linked (Heine et al., 1999). According to Heine et al. (1999) socialisation (of the self) requires the incorporation of cultural ideologies into the developing self. The close association between culture and self-esteem is not a new concept. In 1993, Gresham, Elliott, and Evans-Fernandez (as cited in Ju, Zhang, & Katsiyannis, 2013) clearly acknowledged the role of culture in self-esteem in their Student Self-Concept Scale. They defined self-esteem as involving self-perceptions that related to the confidence that an individual held in terms of their behaviours and attributes that aligned with aspects of the individual's culture. Within terror management theory, self-esteem is culturally constructed, as individuals integrate cultural contingencies of value into their individual viewpoint (Pyszczynski et al., 2004). Thus, cultural contingencies of value influence the perceptions that individuals develop as a result of evaluations of their experiences. Pyszczynski and colleagues argued that variability in contingencies of value would be expected, due to differences in contingencies held by cultures as well as individuals. This indicates that variability would be expected in terms of what constitutes self-esteem. It also supports Harter's notion that individual differences are an important contributor to the development of self-esteem.

The majority of research that supported the assumption that individuals are motivated to maintain high levels of global self-esteem, has also been carried out in geographical areas underpinned by a Western philosophy (Heine et al., 1999). This has led to a greater

understanding of self-esteem within this philosophy; however, Heine and colleagues noted that markedly less research has been carried out in areas underpinned by Non-Western philosophies. However, research has found differences between how cultures view self-esteem. Heine et al. (1999), in their review of self-esteem research from Japanese and North American cultural contexts, found that within the North American culture, a predominant focus was placed on the strengths of individuals and positive self-views. However, in the Japanese culture, emphasis was placed on the weaknesses of the individual; self-views tended to be much lower in comparison to the North American Culture. These differing self-views were reflected in global self-esteem scores (Heine et al., 1999), with scores from the Japanese studies being consistently lower than scores from North American counterparts. However, participants from both cultures strove to develop positive self-regard. The role of culture in self-esteem was also examined within different groups of Asian descent, residing in North America. Heine and Lehman (1995) found an association between exposure to North American culture and the self-esteem of individuals of Asian descent. Increases in self-esteem scores were associated with the length of time participants had been exposed to North American culture. However, this association was dependent on the degree to which the participants assimilated to the culture (Heine & Lehman, 1995). Thus, it appears that individuals are reactive to cultural contexts (Heine et al., 1999) that supports the influence of culture in the development of self-esteem.

The role of culture in developing self-esteem has highlighted a second criticism related to global self-esteem, that is whether global self-esteem is a stable trait-construct, developing along a linear trajectory, or whether it is a state-construct open to fluctuations (Badayai & Ismail, 2012; Trzesniewski et al., 2013). Literature tends to indicate that self-esteem is a trait-like construct, as opposed to an ephemeral state (Robins & Trzesniewski, 2005; Trzesniewski, Donnellan, & Robins, 2003; Trzesniewski et al., 2013). According to

Rosenberg et al. (1995) global self-esteem is most relevant to individuals' psychological well-being, as opposed to being influential in specific behavioural outcomes that would be indicative of self-esteem being a state-construct. Trzesniewski et al. (2003), in their meta-analysis concluded that the stability of self-esteem was lowest during childhood, with increases during adolescence and early adulthood, and a decline from middle age onwards. Robins and Trzesniewski (2005) found that self-esteem was relatively stable in individuals, even though differences in levels of self-esteem along the lifespan were noted. Individuals who demonstrated higher levels of self-esteem early on tended to exhibit similar levels of self-esteem later in life. The notion that self-esteem is relatively stable in individuals suggests that malleability would be less likely in individuals.

The trait-like nature of self-esteem has been contested within literature. Tafarodi and Ho (2006) argued that self-esteem is a hypothetical construct developed on the basis of subjective reports that gauge individuals' self-evaluations. Thus, self-esteem is not a static construct but is formed on the basis of past experiences, which are influenced by an affect component. They argued that past experiences that are drawn on by individuals are highly influenced by the defining memories that an individual uses to self-evaluate. However, these evaluations can be transformed by subsequent evaluations of an individual's experiences. This suggests that self-esteem could be stable in some individuals, but it may be malleable. Badayai and Ismail (2012) argued that environmental conditions and social experiences, such as peer acceptance and academic performance, are influential to the development of global self-esteem. They further argued that self-esteem might not be the impetus driving behaviour in individuals and that it could be the consequence of different behaviours or experiences. This suggests self-esteem could be open to fluctuations. The conclusions regarding the stability of self-esteem hinge on whether individuals experience similar outcomes in terms of their developmental shifts across the lifespan (Robins & Trzesniewski, 2005).

The trait-like stable nature of self-esteem in children has been highly contested in literature. Trzesniewski et al. (2013) questioned whether the notion of low stability in the self-esteem of children is valid because this contention ignores the role of cognitive development in children. Self-esteem in young children has been argued to be relatively high because of the fact that the self-judgements that children make about their own attributes and abilities tend to be ideal rather than realistic, which occurs regardless of gender (Robins & Trzesniewski, 2005). The decreases in self-esteem that are commonly experienced between childhood and adolescence are reflective of changes in the source of self-esteem that is linked to cognitive development (Harter, 2006). Harter argued that the source of self-evaluations shifts from self-judgements to external criteria that include academic achievement and physical competence as well as self-referential comparisons. The low stability of self-esteem in children may be reflective of a state-construct of self-esteem, which becomes more trait-like and stable over the lifespan, as individuals develop the cognitive ability to make realistic self-evaluations.

The trait-construct versus state-construct argument fails to acknowledge the fact that both constructs may play an analogous role in the development of self-esteem. The trait-construct is underpinned by notions of abilities, which become increasingly accurate over time (Humphrey, 2004). This suggests that understandings about abilities and conceptions of competence are an important aspect of trait-construct self-esteem. However, Park and Crocker (2013) noted that outcomes of events, whether positive or negative are influential to state self-esteem. However, the outcome of an event is related to the perceptions that an individual holds that contribute to the event as being positive or negative. This may be why Park and Crocker (2013) argued that state self-esteem, while open to some fluctuation, tends to maintain close proximity to trait self-esteem. It appears that the outcomes of experiences are influential in state self-esteem. The influence of the outcome on the individual is

dependent upon the whether the individual has placed value on that outcome (Park & Crocker, 2013), which will influence the state self-esteem. The notion that individuals may place more value on specific outcomes, thus, experiencing fluctuations in state suggests that self-esteem, as opposed to solely comprising a single domain, actually comprises multiple domains.

The notion that self-esteem comprises multiple domains resulted in the emergence of the hierarchical model of self-esteem. This theoretical model is underpinned by the notion that domains exist within self-esteem, which are hierarchical in nature. This model does not devalue the role or existence of global self-esteem in the development of self-esteem. The realisation that individuals have specific and overall attitudes towards objects is fundamental to understanding self-esteem (Rosenberg et al., 1995). This acknowledged the fact that individuals have an overall global self-esteem, which Rosenberg and colleagues termed as an overall attitude towards an object, as well as, specific domain level self-esteem, which they termed as attitudes about different elements within the object.

The emergence of a hierarchical model of self-esteem has been controversial. Early controversy related to whether self-esteem was dominated by one general factor (global self-esteem). Early research found that while domain-specific areas existed, the dominance of specific-domains by global self-esteem meant that discriminant validity of differentiated domain-specific areas could not be found (Coopersmith, 1967; Marx & Winne, 1978). This finding was challenged by subsequent reviews of research that attributed support for this notion to limitations in early research methodology that included low quality measures and methods of statistical analysis enacted at that time (Marsh & Craven, 2006). In an effort to address difficulties in research methodology, Shavelson, Hubner, and Stanton (1976) identified seven components of self-esteem. This included a hierarchical component that provided recognition for the situation-specific nature of self-esteem, which supported current

definitions (Shavelson et al., 1976). Shavelson and colleagues provided a theoretical interpretation of a hierarchical model of self-esteem that was instrumental in research. Strong support was found for a multidimensional model of self-esteem; however, controversy arose regarding the internal structure of the hierarchical model. Research failed to support the initial structure of the model offered by Shavelson and colleagues, although the multi-dimensionality of self-esteem was supported (Byrne, 1984; Marsh, 1987, 1990; Marsh & Yeung, 1998; Ridsdale, 2004; Trautwein et al., 2006). However, evidence from research indicates that subsequent offerings of internal structures of this model are still debatable. As with earlier research, current research that examined the internal structure of hierarchical models was also influenced by the measures that were used and the statistical analyses used to determine the existence of factors and the construct validity of such models (see Byrne, 1984; Marsh, & Craven, 2006).

There tends to be general agreement that global self-esteem is at the apex of the self-esteem hierarchy with differentiation into specific-domain levels. However, it is controversial as to whether the development of global self-esteem and domain specific self-esteem occurs in a bottom-up or top-down manner. According to Shavelson et al. (1976), self-esteem develops in a top-down trajectory. They argued that children are unable to differentiate between different aspects at a young age and that it is through development that they begin to have the capacity to differentiate between levels of specificity via their experiences. The lack of cognitive understanding required to differentiate aspects largely precluded the role of specific domains in the development of self-esteem in young children. Shavelson et al. (1976) argued that stability was an important component in self-esteem, with global self-esteem being the most stable, with less stability in the domain specific areas of self-esteem. This notion supports previous conceptions that global self-esteem is a trait construct, while domain specific self-esteem is mostly likely state-like in nature. However, Shavelson et al. (1976)

had recognised the situation-specific nature of self-esteem within their hierarchical model. This suggests that children are able to make evaluative judgements at a young age and as such variation in global self-esteem might be demonstrated in young children.

The model offered by Shavelson and colleagues has also been interpreted as supporting the idea that self-esteem develops via bottom-up effects. This is because self-esteem develops via the individual's environment and the reinforcement offered by significant others (Trautwein et al., 2006). While further elaboration was lacking, this suggests that multiple interpretations of Shavelson and colleagues' model exist, which may influence how self-esteem is conceptualised and utilised within research. Bottom-up effects underpin Harter's self-concept theory (Harter, 2006). Harter (2006) argues that young children are incapable of integrating different aspects of the self and children lack awareness of the valence that accompanies attributes and emotions. Accordingly, lower cognitive development means that younger children are unable to develop a concept of their global self-esteem. It is not until mid to late childhood that individuals can develop a construct of their global self-esteem from their domain specific self-esteem (Harter, 2006). This developmental trajectory may explain why few gender differences have been found in research with younger children (Badayai & Ismail, 2012). Gender differences emerge alongside the increased differentiation of specific domains and sub-domains at adolescence, often investigated via age/grade (Kling, Shibley Hyde, Showers, & Buswell, 1999; Marsh et al., 2015; Vaughn, Elbaum, & Schumm, 1996). However, gender has been implicated in other variables that may affect the development of self-esteem, including behaviour (Kling et al., 1999), task choice (Eccles, Wigfield, Harold, & Blumenfeld, 1993), and learning difficulties (Al Zyoudi, 2010).

Overall conclusions regarding top-down versus bottom-up effects are largely absent from literature. This may be because both models are multi-dimensional, which allows for the

examination of self-esteem within a broad framework (Marsh & Craven, 2006). Reciprocal relationships have been postulated within research that incorporates top-down and bottom-up effects (Marsh et al., 1999; Marsh & Craven, 2006). In the development of self-esteem, this notion is evident within the motivational theory of expectancy-value that posits that an individual's expectancies (beliefs for the future) and values (of tasks) influence choice, perseverance, and performance (Wigfield & Cambria, 2010; Wigfield & Eccles, 2000). Furthermore, interest in academic self-esteem has gained momentum over the last few decades, especially within educational research. This was most likely related to the growing interest in the relationship between academic self-esteem and academic achievement (Chapman, 1988; Chapman & Boersma, 1979). Research has identified a stronger association between academic self-esteem and academic achievement, than between global self-esteem and academic achievement (Byrne, 1984; Chan & Lam, 2008; Marsh & Yeung, 1998; Trautwein et al., 2006). Research suggests that content-specificity may be important to understanding the relationship between academic self-esteem and academic achievement. Research by Marsh, Trautwein, Lüdtke, Köller, and Baumert (2005) found significant associations between sub-domains of academic self-esteem (Mathematics, German, and English) and academic achievement.

Academic Self-Esteem.

A multi-dimensional model of self-esteem posits that what an individual feels, thinks, or knows about him or her self can be categorised into different domains. A critical issue is whether the domain of academic self-esteem exists as part of a multi-faceted construct in children (Marsh & Craven, 2006). According to Shavelson et al. (1976) global self-esteem primarily differentiates into two areas; academic and non-academic self-esteem. Further differentiation into specific sub-domains is evident that includes physical ability and attractiveness, peer and parent relationships, reading, and mathematics, and general school.

While research into self-esteem in adolescents is evident (Burton, 2004; Glazzard, 2010; Guay et al., 2010; Hettinger, 1982; Ingesson, 2007; Peixoto & Zukauskiene, 2010), there is notably less literature involving research with younger children. This may be related to differences in conceptions of self-esteem in the child population. Harter and Pike (1984) found that children as young as 8 years of age were able to differentiate between multiple domains as well as report on their overall self-esteem. This supported the notion that children do not view themselves as being alike on all domains of their self. However, Harter and Pike (1984) argued that the internal structure of self-esteem was markedly different for younger children in comparison to older children and adolescents. They argued self-esteem was less differentiated because younger children tended to view themselves in terms of general competence (without valence) and social acceptance, especially that related to peers and the mother, as opposed to the highly differentiated constructs identified in older children. This research did support the notion of a multi-dimensional model of self-esteem in children, as well as, supporting the notion that domain-specific and global self-esteem in children was measured. However, their research did not provide support for a domain-specific area of academic self-esteem.

The conclusions made by Harter and Pike were later critiqued. Marsh, Craven, and Debus (1991) argued that Harter and Pike's findings were likely related to their exploratory two factor (general competence and social acceptance) analysis that only contained two different sub-domain areas (cognitive and physical competence, as well as, peer and maternal acceptance). Marsh and colleagues argued that determining the presence of specific-domains and sub-domains within a developmental model required the use of measures that contained these content-specific factors. In their research with children from kindergarten to Grade 2, Marsh and colleagues found support for an 8-factor model of self-esteem that included academic self-esteem and general self-esteem. In a later review, Marsh, Craven, and Debus

(1998) concluded that research indicated that children, less than 8 years old were able to demonstrate a multi-dimensional structure of self-esteem that mirrored that found for older children and adolescents. However, they reported a less differentiated structure for younger children. This supported the notion of a developmental model proposed by Harter and Pike (1984). Recent research by Ehm, Lindberg, and Hasselhorn (2014) found that children in Grade 1 to 3 demonstrated a multi-dimensional model of self-esteem. However, variation in research methodology between studies that includes measures (Harter and Pike's Pictorial Scale of Perceived Competence and Social Acceptance for Young Children versus Marsh's Self-Description Questionnaire) and statistical analyses means that one needs to be cautious when interpreting conclusions in this area. Overall, research supports two key conceptions in the development of academic self-esteem. Firstly, self-esteem is multi-dimensional in younger children with differentiation occurring into sub-domains that include an academic area. Secondly, self-esteem is developmental due to differences in degrees of differentiation in domains and sub-domains between younger children and their older counterparts.

Defining academic self-esteem is no easy feat. Definitions are absent from much literature, suggesting that some researchers have fallen prey to the viewpoint that all individuals hold the same notion of what constitutes academic self-esteem. Definitions sourced from literature view academic self-esteem as developing from a variety of factors. Marsh and Craven (1997) conceptualised academic self-esteem as a self-perception that is formed through the evaluations that a student makes of their experiences and interpretations of their school environment. Trautwein et al. (2006) defined academic self-esteem as including an individual's self-evaluations of ability in an academic domain. The skill development model posited that the development of academic self-esteem was closely associated with learning tasks, with past academic achievement influencing self-esteem.

Thus, academic self-esteem includes the perceptions that students have as a result of their accomplishments within learning tasks (Chapman & Tunmer, 2003).

The influence of skill levels in the development of academic self-esteem has also been recognised. Students, with higher skill levels, whom demonstrated positive accomplishments are more likely to develop positive academic self-esteem; whereas, students with lower skill levels whom exhibited difficulties in learning tasks are more likely to develop lower academic self-esteem (Chapman & Tunmer, 2003). Students with more difficulties or more severe difficulties are more likely to have lower academic self-esteem (Cosden et al., 1999). These notions suggest that academic self-esteem is related to the success or lack of success that occurs in the school environment (Bracken, as cited in Kadam, 2014). Research has clearly identified that students with LLD differ from student without LLD (Bear, Minke, & Manning, 2002; Chapman, 1988). In their meta-analysis, Bear et al. (2002) found that students with LLD judged themselves less favourably than students without LLD, in areas that included academic self-esteem, as well as, specific sub-domains (reading, spelling, writing, math). Once heterogeneity was controlled for, the greatest effect size was found for reading self-esteem (ES = -.96). The heterogeneity found in Bear and colleagues' meta-analysis, indicates the presence of moderating variables in the association between academic self-esteem and its constituent sub-domains and students with LLD.

Academic self-efficacy has also been implicated in the development of academic self-esteem. According to Bong and Skaalvik (2003) academic self-efficacy beliefs contribute to the development of academic self-esteem because in the early stages of development children lack experience in the academic domain. Because domain-specific areas are differentiated to a lesser degree, academic self-esteem is more likely to be cross-situational as well as heavily influenced by affective evaluations of skills and abilities. It is experience, active and vicarious, that contributes to perceptions of competence becoming more differentiated via

cognitive development within domain-specific areas, including the academic domain (Bong & Skaalvik, 2003). They argued that the development of academic self-esteem is underpinned by cognitive judgements that individuals make about their experiences as well as the affective reactions that accompany judgements that contribute to academic self-esteem becoming more stable over time. This suggests that academic self-esteem derives from an individual's evaluations of their experiences in their educational environment, which includes cognitive and affect components. This may be why academic self-esteem appears as an aggregated judgement across school subjects. While experiences are acknowledged as playing a fundamental role in the development of academic self-esteem, it is also evident that contextual factors within the experiences and educational setting are also influential.

One contextual factor influencing the development of academic self-esteem is the outcomes that underpin an experience. Byrne (1984) argued that achievement outcomes within contexts influence the development of academic self-esteem. This was supported in research by Lüdtke, Köller, Marsh, and Trautwein (2005). They found that a focus on academic progress within experiences led to higher levels of academic self-esteem in mathematics. Recently Wu and Kuo (2015) found, in a sample of Taiwanese children from Grade 3 to Grade 6, educational activities underpinned by academic outcomes were significantly associated with the development of academic self-esteem. However, this association was stronger for a group of students in Grades 3 and 4. The differences between the groups may be related to differences in cognitive development and affect. Wu and Kuo concluded that the development of cognitive abilities in the older students enabled a more realistic evaluation of their academic self-esteem to be made.

Another contextual factor that is influential in the development of academic self-esteem are the frames of reference or standards against which an individual makes self-judgements. One frame of reference includes the social comparisons of significant others.

Within the educational context, frames of reference include peers and teachers. The ability of peers has been found to be influential in the development of academic self-esteem (Marsh et al., 2008). Termed as the big-fish-little-fish-pond effect (BFLPE), this theory posits that students of similar ability will have higher or lower academic self-esteem based on whether they attend schools where average ability levels are higher or lower (Marsh et al., 2008). Marsh and colleagues concluded that the standard of comparison occurred at school-level and that schools developed their own frames of reference.

Evidence from literature, however, suggests that frames of reference (social comparisons) exist within different levels of the educational context. Research has found that differences in the academic self-esteem of students with LLD depended on whether the frame of reference included typically achieving children (resulting in lower academic self-esteem) or similar-ability students (resulting in higher academic self-esteem) (Renick & Harter, 1989). Students with LLD who received support in a resource room were found to have higher levels of reading self-esteem than similar-ability students who received in-class support (Wiener & Tardif, 2004). Recently, Casserly (2013) found that levels of self-esteem in children with dyslexia improved when they attended specialist reading classes or schools, as opposed to attending mainstream classes or school. This suggests that frames of reference at classroom level are influential to academic self-esteem and that the frames of reference appear to be associated with the ability levels of students. Social comparative information may extend beyond academic self-esteem to affect social self-esteem, which may further influence the social comparative information that students use in the development of academic self-esteem. Casserly (2013) found that students perceived themselves as less favourable in comparison to their peers within mainstream contexts; however, these perceptions dissipated throughout the students' alternate educational placement. Students who demonstrated higher levels of reading self-esteem and received support in a resource

room context also demonstrated lower levels of social self-esteem than their counterparts who received in-class support (Wiener & Tardif, 2004). Wiener and Tardif (2004) attributed lower levels of social self-esteem to the withdrawal versus inclusion model underpinning their educational placement.

The notion that experiences, which are underpinned by achievement outcomes, are influential in the development of academic self-esteem highlights a second critical issue, the relationship between academic achievement and academic self-esteem. The existence of this relationship has long been posited in literature. Shavelson et al. (1976) hypothesised that an association existed between academic self-esteem and academic achievement, as well as, between sub-domain specific areas, such as, science and achievement. This notion has support within literature. A meta-analysis by Hansford and Hattie (1982) reported a mean correlation of .21 between concepts of the self and academic/educational outcomes, with a range from .96 to -.77. The correlations were strongest during the pre-school to secondary period, with the majority of correlations being positive. The mean correlation for studies that included domain-specific areas was also substantially higher (.42) than for studies involving global self-esteem (.22) or self-concept (.18) (Hansford & Hattie, 1982). They concluded a strong association existed between self-esteem and academic achievement, when ability was accounted for. Valentine, DuBois, and Cooper (2004), in a more recent meta-analysis of self-beliefs and academic achievement in students from 5 to 20 years of age, identified an overall effect size of .09 (beta co-efficient). Valentine and colleagues found that effect sizes were significantly larger for academic measures of self-belief ($\beta = .13$), than for global measures ($\beta = .07$) or sub-domain ($\beta = .06$) measures of the self. They concluded that self-beliefs were influential in subsequent academic achievement, suggesting a directional relationship from self-beliefs to academic achievement.

In contrast, Baumeister et al. (2003), in a review of literature, concluded there was little support for the posited relationship between self-esteem and school performance. They argued that small positive effects were not enough to conclude that self-esteem had any influence on school performance. The identified negative effects in some studies led Baumeister et al. (2003) to conclude that high self-esteem may lead to negative achievement outcomes in some cases. However, Marsh and Craven (2006) argued that the predominance of global self-esteem measures in Baumeister and colleagues' review failed to recognise the association between specific-domains in the development of academic self-esteem. As such, they argued that the conclusions made by Baumeister and colleagues must be treated with caution.

While the association between academic self-esteem and academic achievement has been acknowledged within literature, the trajectory of the association has been debated. These debates differ according to their theoretical underpinnings. Broadly speaking, theories underpinned by motivation tend to support a linear association, although the trajectories contrast in direction. These theories include self-enhancement theory, which posits that existing levels of academic self-esteem are influential to academic achievement, and skills development theory that posits that academic achievement is a precursor to academic self-esteem (Marsh et al., 2005). Determining the dominance of one trajectory over the other has been via the comparison of effect sizes with causality being determined via larger effect sizes. However, seeking to determine causality via a comparative approach failed to acknowledge the importance of the effect sizes that had been identified using these models (Marsh et al., 1999). Marsh and colleagues posited that the bi-directional relationship between academic achievement and academic self-esteem fit a reciprocal effects model. This model has found support in longitudinal research using structural equation modelling (Guay,

Marsh, & Boivin, 2003; Ju et al., 2013; Marsh et al., 1999; Marsh & Craven, 2006; Marsh & O'Mara, 2008).

The strength of the association between academic self-esteem and academic achievement may be mediated by other variables. One variable mediating the strength of the association between academic self-esteem and academic achievement is age. Ehm et al. (2014) found significant correlations between these two variables for students in Grades 1 to 3, although the strength of the relationship differed between grade levels, with earlier grades demonstrating weaker relationships. These associations occurred for specific sub-domains (reading, writing, and math). Ehm et al. (2014) concluded that at Grade 3, students' performance in one learning area contributed to the development of self-esteem in another specific sub-domain area. This suggests that specific sub-domains may play different roles in the association between academic self-esteem and academic achievement. These differential roles may positively or negatively influence the association between academic self-esteem and academic achievement. According to Humphrey (2004), lower academic self-esteem may result in changes to the emphasis that a student places upon a domain, with subsequent changes to effort investment negatively influencing academic achievement that reinforces levels of academic self-esteem. If a student comes to view academic achievement as an unimportant goal then the strength of the relationship between academic self-esteem and academic achievement is likely to be negatively influenced (Humphrey, Charlton, & Newton, 2004). This aligns with the notion that a strong association exists between perceptions of competence, which underpin academic self-esteem and academic achievement. However, it is also evident that this association can result in positive and negative outcomes for individuals.

Self-efficacy.

Self-efficacy emerged from the field of behavioural psychology as a result of two major trends that emerged regarding behavioural change (Bandura, 1977). These trends involved conceptions of human behaviour and whether the acquisition and regulation of human behaviour occurred as a result of cognition or performance based procedures (Bandura, 1977). Bandura posited that change in human behaviour could be effected by means other than performance outcomes, a notion that had previously underpinned theories of behavioural change, such as classical and operant conditioning. Bandura argued that human behaviour stemmed from a cognitive mechanism that mediated behavioural change and effected psychological change. Literature supported the notion that cognitive processes were influential in human behaviour, which was no longer viewed as being affected by immediate consequences. Experiences were viewed as paramount because they enabled the processing and synthesising of causal relations between events by the individual. The social environment that includes family, peers, and school, is paramount in developing knowledge. As an individual develops an agentic stance, knowledge is developed internally and externally (Pastorelli et al., 2001). Bandura also implicated the role of cognitive processes and the influences of goal setting and self-evaluations in motivational behaviour. Within Bandura's (1977) theoretical framework, behavioural change was underpinned by self-efficacy.

Self-efficacy is concerned with an individual's judgement of his or her own performance capabilities and is influenced by cognitive processes (Bandura, 1997; Bong & Skaalvik, 2003; Zimmerman, 2000). In literature, self-esteem and self-efficacy have, at times, been treated synonymously, usually under global self-esteem. This treatment is most likely why self-efficacy has had a relatively short lifespan within literature, in comparison to self-esteem. Bandura (1981) argued that this treatment has diminished the ability of researchers to

use each construct to understand and explain human behaviour. The synonymous treatment is likely due to the fact that the constructs share multiple facets, including the importance of past experiences, social comparison, and reinforcement from significant others (Bong & Skaalvik, 2003). However, the relationship between one's judgements of capabilities and one's self-worth is not fixed (Bandura, 1997). An individual can be efficacious or inefficacious in an activity without experiencing any valuation or devaluation in their self-esteem; the value that an individual places on an activity influences the strength of the association between self-efficacy and self-esteem (Bandura, 1997).

The strong association between the two constructs is influenced by the fact that individuals are more likely to place value on developing their abilities within activities that foster their self-esteem (Bandura, 1997). A higher correlation between self-esteem and self-efficacy is likely to occur if research focuses on activities that individuals assign a high degree of value to, such as academic achievement. However, this assignment does not automatically translate to accomplishment of outcomes; individuals' need more than self-esteem. Accomplishments are the result of effort (Bandura, 1997). Self-efficacy is instrumental in accomplishment. It underpins the effort and confidence or convictions that are required to achieve. This links self-efficacy to specific situations and contexts (Bong & Skaalvik, 2003).

The construct of self-efficacy holds a vital role within social cognitive theory. Self-efficacy is an influential factor in the acquisition of knowledge, from which skills are derived. Effective functioning requires both skills and self-efficacy in order for performance outcomes to be accomplished (Bandura, 1997). Individuals function differently within different contexts or domains. Thus, self-efficacy recognises the diversity of individuals' capabilities that are "patterned differently in different individuals" (Bandura, 1997, p. 42). According to Bandura (1997) this posited self-efficacy as a multi-dimensional construct that

did not preclude general self-efficacy as being independently structured because of the transfer of efficacy beliefs between domains. Self-efficacy can also be conceptualised along a continuum, anchored by self-doubt and self-efficacy (Zimmerman & Schunk, 2001). Individuals move along the continuum as a result of their experiences. This suggests that self-efficacy develops over time and is malleable in nature.

Within Bandura's model, self-efficacy is formed via four major information sources that include; mastery experiences, vicarious experiences, verbal persuasion, and physiological and affect states. Enactive mastery experiences are the most influential sources of efficacy information because the experience provides the individual with evidence of what is required to achieve success (Bandura, 1997). Successful experiences promote self-efficacy. Unsuccessful experiences can compromise self-efficacy beliefs, especially if these occur prior to self-efficacy beliefs being firmly established. Difficult experiences are instrumental to the development of self-efficacy because if perseverance is enacted, this contributes to the development of resilient self-efficacy (Bandura, 1997). Difficult experiences enable individuals to fine-tune existing capabilities in order to control their events and to achieve success. However, mastery experiences require the synthesis of multiple tools that include cognitive, behavioural, and self-regulation capabilities, in order to develop effective performances. Not all experiences provide mastery information that influences the development of self-efficacious beliefs because some experiences provide redundant material that do not reveal information contributing to further developing self-efficacy (Bandura, 1997). However, non-enactive and enactive experiences may contribute to contradictory outcomes over time that are interpreted and integrated into new self-efficacy beliefs that influence subsequent experiences (Bandura, 1997). Thus, self-efficacy is both the product and construct of experiences (Bandura, 19797) that suggests that the development of self-efficacy is likely to be reciprocal in nature.

Vicarious experiences are influential in the development of self-efficacy because activities do not always provide indicators that enable evaluations of capabilities to occur. Therefore, vicarious experiences provide an individual with modelled attainments of success that can be used by individuals in their evaluation of their capabilities (Bandura, 1997). The use of these models also enables evaluations of capabilities to occur in absence of an individual's performance (Oettingen, 1995). However, vicarious learning is not restricted to external models. Self-modelling or internal modelling occurs when individuals use their observations of their own accomplishments to influence self-efficacy beliefs (Bandura, 1997). Vicarious learning can supersede enactive experiences because the modelling can alter perceptions of confidence, which is then applied to experiences (Bandura, 1997). However, the social comparisons that underpin these experiences appear to be highly complex. Social comparisons may include different forms depending on the task at hand. Individuals tend to use models as referents that are engaged in the same or similar tasks and the greater alignment between the individual and the model have been found to be of a greater influence to self-efficacy beliefs (Bandura, 1997; Braaksma, Rijlaarsdam, & Van den Bergh, 2002). Social comparisons become more influential if the individuals' understanding of their capabilities is less fixed or if, over time, experiences result in variable success and failure for the individual. This form of self-efficacy generally does not operate independently of a model within situations, with the dominance of internal and external forms of vicarious experiences deriving from the strength of the model (Bandura, 1997).

The role of verbal persuasion in developing self-efficacy beliefs is largely related to its influence on individual effort and perseverance within a task, with the outcomes influencing the development of self-efficacy. The effect of verbal persuasion is usually short-term with the effectiveness of it being associated to the level of realism in the persuasive statements (Bandura, 1997). Persuasion that alters self-efficacy beliefs to an unrealistic level

tends to result in subsequent failure, which discredits the persuader and undermines an individual's self-efficacy beliefs. Verbal persuasion is most often received by individuals in the form of evaluative feedback that relates to skill and effort (Bandura, 1997). Feedback is also linked to social comparisons and experiences. According to Bandura, indirect feedback often conveys notions of negative social comparisons. The absence of enactive mastery experiences either negatively influence fixed self-efficacy beliefs or contribute to the development of unrealistic self-efficacy beliefs (Bandura, 1997).

The role of self-efficacy in education is evident within literature. Self-efficacy has been found to be an influential factor in academic achievement in older children and adolescents (Chan & Lam, 2008; Ferla et al., 2009; Pajares, 1996; Zimmerman, Bandura, & Martinez-Pons, 1992). While self-efficacy is commonly conceptualised as perceived self-efficacy, much research reflects the multi-dimensional nature of self-efficacy and has investigated domains of self-efficacy that include academic, emotional, and social self-efficacy, as well as, academic sub-domains such as reading, writing, mathematics, language, and science. Academic self-efficacy refers to the evaluation that an individual makes regarding their ability to achieve success within specific academic tasks (Bong & Skaalvik, 2003). Academic self-efficacy has been associated with academic achievement; however, literature differs on how they are associated. Some researchers (Bandura, 1997; Pajares, 1996; Zimmerman, 2000) contend that variables such as motivation and self-regulation mechanisms mediate the association between self-efficacy and academic achievement. Linnenbrink and Pintrich (2003) argue that the association between academic self-efficacy and academic achievement is mediated by behavioural, cognitive, and motivational engagement. Lee and Jonson-Reid (2016) found that motivation, but not behaviour, mediated the association between self-efficacy and reading achievement in 3rd grade students. Amitay and Gumpel (2015) found that general, social, and academic self-efficacy was associated

with learning difficulties that subsequently influenced academic achievement in a sample of adolescents in Israel. Galla and Wood (2012) found the emotional self-efficacy mediated the relationship between anxiety and academic achievement in early adolescents. These findings support the notion that variables may mediate the association between academic self-efficacy and academic achievement, or that academic self-efficacy may directly influence behaviour, which in turns influences academic achievement (Lee & Jonson-Reid, 2016).

However, research has often failed to acknowledge the role of developmental trajectories and different conditions that influence self-efficacy. Self-efficacy in children may be less likely to be mediated by cognition due to lesser-developed cognitive abilities that contribute to the development of self-regulatory mechanisms and an agentic self; thus, the early development of self-efficacy beliefs may be more likely to be mediated by external factors, such as motivation, as identified by Lee and Jonson-Reid (2016). Different phases of skill development that include acquisitional and acquired phases influence performance outcomes and as such the evaluations that individuals make regarding their capabilities that is an information source for the development of self-efficacy (Bandura, 2012). Furthermore, different conditions also influence the development of self-efficacy due to the emotional responses that children have during experiences and their ability to cope with their responses (Riggio, 2012). Future experiences may also reinforce the development of self-efficacy because students may be more likely to choose tasks that do not result in high levels of emotionality.

The multi-dimensional nature of self-efficacy has resulted in the emergence of specific sub-domains, such as reading and writing. Self-efficacy and specific sub-domains have been demonstrated in research with older students (Bandura, 1997; Bandura, Barbaranelli, Caprara, & Pastorelli, 1996; Ferla et al., 2009; Shell, Murphy, & Bruning, 1989). However, it is more controversial as to when domain-specific self-efficacy develops in

younger children. Literature appears to support the notion that children can differentiate between domains at a younger age. Lee and Jonson-Reid (2016) found that children from Grade 1 to Grade 3 demonstrated differentiation at the sub-domain of reading self-efficacy. They also found that reading self-efficacy was predictive of reading achievement. Likewise, Liew et al. (2008) found that children in Grades 1 to 3 demonstrated differentiation in academic self-efficacy and that self-efficacy was correlated with reading scores at Year 1 and reading and math scores at Year 2 and 3. Self-efficacy may also generalise beyond specific domains or sub-domains (Bandura, 1997). Jungert et al. (2014), in a sample of Swedish Grade 4 and 5 students, found that mathematic self-efficacy was correlated to self-efficacy in English. Amitay and Gumpel (2015) identified associations between academic and emotional self-efficacy as well as social and emotional self-efficacy. Jungert et al. (2014) suggested that it may be the level of achievement that influences the move from self-efficacy being domain specific towards being cross-domain. This tends to support the importance of acknowledging the constraints within experiences, such as differences in skill development, as advocated by Bandura (2012).

Resilient self-efficacy beliefs may promote the transfer of beliefs across domains during mastery experiences. Resilience self-efficacy is underpinned by perseverance, the development of which enables individuals to act differently than they would if experiencing self-doubt (Bandura, 2012). Via perseverance and resilient self-efficacy an individual may begin to assign value to experiences that had previously been devalued. Research has also indicated that self-efficacy beliefs are predictive in future achievement. Zuffianò et al. (2013) found that after academic achievement at 6th grade, self-efficacy was the largest predictor of academic achievement across primary subjects, in a sample of Italian 8th grade students. Liew et al. (2008) found that academic self-efficacy at Year 1 was significantly associated with reading at Year 2 and Year 3. Zuffianò et al. (2013) concluded that past academic

achievement might be influential in the mastery beliefs, which then influence future academic achievement. This finding suggests that a reciprocal relationship exists between the information sources within self-efficacy and academic achievement.

Resilience.

Multiple theories of resilience are evident within literature (see Fletcher & Sarkar, 2013 for a review). These theories explain resilience within specific domains, such as medicine, organisations, community, military, and sports, or points within the lifespan, such as adolescence, adulthood, and elderly, or by risk factors, such as trauma, loss, and stress. While these theories recognise the fundamental components of risk and adaptation in resilience, the theoretical underpinnings have resulted in an emphasis on different indicators and thresholds that vary across contexts. An alternative way to view resilience is to situate it within a broader theory of human development. One such theory is the ecology of human development theory or ecological systems theory framework developed by Uri Bronfenbrenner.

Bronfenbrenner (1977) argued that understanding human behaviour required an examination of the multiple systems in which individuals interacted, which included proximal and distal systems. Underpinning Bronfenbrenner's theory was the premise that human development was influenced by an individual's interactions within a multitude of systems (Becker & Luthar, 2002). According to Bronfenbrenner (1977), individual development occurred within four inter-related systems that included the proximal microsystem and mesosystem, and the distal exosystem and macrosystem. Bronfenbrenner (1986) later added the chronosystem to incorporate transitions across the lifespan that were normative (school entry, puberty, marriage) and non-normative (divorce, family bereavement, severe illness). During development, the proximal systems undergo changes

that are reflected in changes within distal systems. While a multitude of factors influence human development, the inter-related and reciprocal nature of the systems means that adversity or risk in one system is influential to interactions between and within other systems (Atkinson, Martin, & Rankin, 2009).

The concept of resilience first emerged within the field of psychopathology as researchers investigated children who experienced a variety of negative circumstances that included postnatal, parental psychopathology, psychosocial, maltreatment, catastrophic life events, and loss (Luthar et al., 2000; Masten et al., 1999). Researchers theorised that the likelihood of maladjustment or negative outcomes for these children was increased due to their experience of risk (Luthar & Cicchetti, 2000; Ofiesh & Mather, 2012; Schoon, 2006). However, researchers found that some children, despite being at high-risk for maladaptation, demonstrated positive adjustment and developed into competent adults (Luthar et al., 2000; Masten et al., 1999; Schoon, 2006; Werner, 2000b). This led researchers to focus on individuals at-risk for maladaptation whom exhibited resilient qualities (Luthar et al., 2000). Subsequent research identified characteristics within individuals that enabled them to adapt within situations of risk (Rutter, 1987) that included IQ, locus of control, temperament, positive affect, extraversion, self-esteem, and self-efficacy (Fletcher & Sarkar, 2013). Because these characteristics promoted or increased the likelihood of positive outcomes for at-risk individuals, they were termed protective factors.

The focus on within-individual protective factors resulted in resilience being conceptualised as trait-like construct. However, this conceptualisation was later criticised because while the model recognised individual differences in terms of maladaptive versus adaptive outcomes, this was underpinned by factors that had been dichotomised; with either the existence of (protective) or absence of (vulnerable) specific innate characteristics in individuals (Luthar & Cicchetti, 2000; Luthar et al., 2006). Resilience as an outcome also

conveyed the notion that the relationship between risk and adaptation was linear, with the existence of protective factors deemed enough to offset maladaptation. However, Beauvais and Oetting (1999) argued that the existence of protective factors did not result in resilience or positive adaptation for individuals. They argued that because protective factors did not inherently exist alongside resilience, protective factors only became influential during adversity. The static and linear nature of resilience was not supported by research (Condly, 2006; Luthar et al., 2006). In a sample of 9th grade at-risk students, Luthar (1991) found IQ yielded differential effects for individuals, leading the authors to conclude that IQ held protective and vulnerability factors. Furthermore, Luthar (1991) found that some factors, such as ego resilience, did not exert a direct influence on outcomes, but promoted other beneficial or compensatory effects for at-risk individuals. These indirect salutary influences became known as promotive or compensatory factors (Sameroff et al., 2003).

The importance of individual differences in resilience challenged the efficacy of defining resilience as a trait-like phenomenon. According to Rutter (1987), the identification of risk and protective factors within a trait-like model did little but predict which variables were highly likely to contribute towards adaptation or maladaptation in individuals. Rutter (1987) also argued that research needed to investigate how factors interacted that enabled individuals to positively adapt when faced with adversity. Subsequent research extended to include external protective factors at the familial and social levels (Masten et al., 1999; McCubbin, 2001) as well as promotive factors that benefited at-risk individuals. The process model of resilience recognised the developmental and situational mechanisms that influenced resilience by focusing on individuals at different stages across the lifespan that included adolescence, adulthood, and older age as well as within multiple contexts that included business, medicine, sport, community, and education (Fletcher & Sarkar, 2013). This model contrasted the earlier outcomes model of resilience, because variables moderated the

association between risk and adaptation or maladaptation (McCubbin, 2001), which also highlighted the role of competence in resilience, as opposed to personal characteristics. More recent research has focused on motivational forces that move the individual towards self-actualisation as well as the role of genetic and neural plasticity in resilience (Richardson, 2002)

Resilience is generally defined as a dynamic process that develops over time that enables an individual to cope with or overcome significant adversity (Cummings et al., 2002; Ofiesh & Mather, 2012; Schoon, 2006; Werner, 2000b). This definition reflects the conceptualisation of resilience beyond the field of psychopathology and echoes key advances within research. This includes the general acceptance that resilience is a multi-faceted construct that is underpinned by the exposure of an individual to risk or adversity and the successful or positive adaptation by the individual (Fletcher & Sarkar, 2013; Schoon, 2006). The dynamic nature of resilience acknowledges the temporal and contextual factors that influence risk and adaptation (Fletcher & Sarkar, 2013). The process component reflects the interaction of different factors that can directly and indirectly moderate adaptation and the development of resilience (Rutter, 1987).

While literature alludes to a general agreement as to what constitutes resilience, less agreement exists regarding the notion of risk. Risk has been operationalised in numerous ways via biological, psychological, and environmental factors (Fletcher & Sarkar, 2013; Luthar et al., 2000; Ofiesh & Mather, 2012; Schoon, 2006). One of the major disparities within literature concerns the threshold against which risk is judged. For example, Luthar and Cicchetti (2000) argue that risk comprises negative life situations, which are established via statistical significance, are related to adjustment difficulties. Inherent in this notion are several thresholds that include risk being chronic in nature due to multiple experiences over time as well as chronicity being statistically associated with adjustment difficulties. Fletcher

and Sarkar (2013) argued that this type of conceptualisation conveys the notion that risk is categorical as well as threshold-dependent.

Threshold-dependency as a marker of risk has led to categories that include low-risk versus high-risk individuals. However, this notion fails to acknowledge the influence that context exerts on both risk and protective factors, which moderate adaptation or maladaptation. Research has found that 10th grade students considered as low-risk due to their more affluent backgrounds were at greater risk for maladaptation due to anxiety, depression, and substance abuse than their less affluent, but high-risk, counterparts (Luthar, 2003). According to Davydov, Stewart, Ritchie, and Chaudieu (2010) the influence of protective factors, and arguably the severity of risk, can be increased, decreased, or reversed due to contributory factors that include development, temporal, and situational factors. Furthermore, risk is dependent not only upon the risk factor itself but also the individual (Vanderbilt-Adriance & Shaw, 2008). This is because while risk and protective factors are contextually influenced, they are also influenced by the individual's own perception of risk (Boyden & Mann, 2005). The individual's contribution to risk that contributes to individual variation makes generalising risk more complex, across and within populations.

Recent literature has challenged the notion of risk. Davis, Luecken, and Lemery-Chalfant (2009) argued that risk in everyday life is inevitable. Rather than risk comprising categorical and arguably less common experiences, contemporary notions of risk include disruptions within everyday life. Davis and colleagues argued that positive adaptation was identifiable within common day-to-day stressors, which made understanding risk factors within this context relevant and important. These disruptions are ongoing but common stressors that also highlight the notion of chronicity in risk. Researchers, such as Davydov et al. (2010), have acknowledged that the mechanisms underpinning resilience may differ depending on the contextual severity of the adversity. This suggests that understanding

adversity is fundamental to resilience research. However, many of the circumstances of adversity identified within research, such as marriage and occupational changes, are not viewed as increasing the likelihood of maladaptation within individuals (Fletcher & Sarkar, 2013). Thus, it could be suggested that the mechanisms that promote adaptation in the face of common life stressors differ from the mechanisms that promotes adaptation within the resilience construct.

Issues also exist around the operationalisation of the term adaptation. Generally, adaptation has been operationalised in three ways that include: the absence of psychopathology, an increase in positive outcomes such as academic achievement or social competence, and the achievement of developmental milestones (Fletcher & Sarkar, 2013; Vanderbilt-Adriance & Shaw, 2008). According to Luthar et al. (2014) the majority of studies operationalise adaptability in terms of salient developmental tasks or competence. This recognises the constraints of individual development in adaptability; however, operationalising adaptability is also dependent upon contextual factors. These factors include the risk factor being studied, as well as, the domain in which risk is being studied (Fletcher & Sarkar, 2013; Luthar et al., 2014). This suggests that while adaptability may be threshold-dependent, the level of adaptability can differ for different populations of at-risk individuals depending on contextual factors.

One of the major debates in resilience literature concerns whether indicators of adaptability should be demonstrated within a single domain or across multiple domains (Fletcher & Sarkar, 2013; Vanderbilt-Adriance & Shaw, 2008). Luthar and Zelazo (2003) argued that a holistic view must be adopted, which requires assessment of outcomes across domains, in order to gain an accurate picture of adaptation. According to Luthar et al. (2014) this is a necessity because positive outcomes in a single domain can be misleading to an individual's overall functioning. The probability of finding positive outcomes in a single

domain was also higher than finding positive outcomes across multiple domains (Vanderbilt-Adriance & Shaw, 2008). A narrow conceptualisation of adaptation may be less likely to increase understandings as to how risk and protective factors may interact with each other or moderate adaptation or maladaptation. However, a narrow focus may be advantageous because it recognises that adaptation can be context-specific. Nor does it preclude the role of moderating or protective factors, which may be why positive outcomes within a single domain has been the focus of research (Vanderbilt-Adriance & Shaw, 2008).

One must be cautious when discussing the efficacy of across-domain or single-domain adaptation. The determination of adaptation in any domain is dependent upon the stringency of criteria that is applied to the domain. Furthermore, the aforementioned stance of Luthar and Zelazo (2003) did not argue that adaptation was required across-domain, but that an across-domain viewpoint was favoured over a single-domain viewpoint in order to capture overall functioning. Furthermore, the association between risk and adaptability cannot be ignored. Luthar et al. (2014) stated that resilience research could involve a single risk factor. However, this is contentious given that research has indicated that the presence of multiple risk factors are more likely to have multiplicative effects on the ability of individuals to adapt (Durlak, 1998). As such, it could be suggested that adaptability needs to operationalised in light of the risk being experienced by the individual. It appears that the nature of the risk factor is fundamental to conceptions of adaptability (Fletcher & Sarkar, 2013). Overall, risk factors must be shown to affect an individual's life choices in order to show an association to resilience. Adaptation in the absence of risk has been argued to reflect a construct other than resilience that comprises different correlates and effects (Rutter, 2012; Schoon, 2006).

Resilience in Education.

Resilience has become a common term within research literature. Ager (2013) argued the 8-fold increase in use over the last 20 years is reflective of the increasing uncertainty in

which individuals reside, as a result of economic, political, environment, and social circumstances. It is of no surprise that interest in resilience, as a response to widespread challenges, has gained traction in both research and policy. One environment that has received a high level of interest is education. The focus on resilience in education has partly emerged due to difficulties in implementing and developing resilience-focused policies within other influential contexts, including the family and community (Brooks, 2006). The school has been recognised as an environment where the resilience of children can be enhanced (Martin, 2002). However, the plethora of resilience-focused programmes that have emerged, often in the absence of rigorous research, has led to resilience in education to be coined as educational faddism (Doll & Lyon, 1998).

Differences exist as to the focus of resilience in education. Fostering resilience in education has been viewed as having the capability to moderate or interact with risk factors that exist within the family and community environments (Brooks, 2006). Benson (2002) argued that the focus on resilience should relate to positive outcomes through children's developmental assets. Schools have also been viewed as caretaking environments, where the academic, social, and personal competence of at-risk students can be focused upon (Doll & Lyon, 1998). It is evident that much of the aforementioned foci pertain to adaptability. However, resilience is made increasingly complex by the multitude of diverse risk factors that students can present within the educational context. These risk factors extend beyond the educational system to include risk factors from external systems that include poverty, abuse, maternal competence, depression, and unemployment (Condly, 2006). According to Doll and Lyon (1998) external risk factors operate in an interconnected manner and because they fall outside of the control of the child, they are more likely to result in an accumulation of risk for students. Therefore, resilience in education is complex due to the plethora of risk and protective factors. The risk posed to the individual may be more severe due to the interaction

of risk factors, which suggests that fostering resilience within education is likely to be a complex issue.

Risk factors also derive from within the educational context. Education is fundamental to developing into a competent adult (Brooks, 2006). The importance of achievement in education may be why resilience in education has been defined as successful and sustained academic motivation and achievement (Martin & Marsh, 2006). This resulted in resilience programmes that contained components that literature had indicated facilitated academic achievement, such as strong leadership, safe climate, positive teacher attitudes, progress monitoring, parental involvement, and high quality instruction (Brophy, 1988). These programmes were largely unsupported by research, which Becker and Luthar (2002) attributed to funding issues and less competent teachers. While Brophy's summary of general classroom literature was largely absent of risk, it did posit resilience beyond notions of academic motivation and achievement. Recent research suggests that resilience in education has latent effects in adulthood. Forrest-Bank and Jenson (2015) found that positive school engagement in childhood was significantly and negatively correlated to criminal intentions in at-risk young adults. They also found that school variables were significantly associated with positive adaptation, in contrast to familial and community variables. This reinforces the importance of facilitating resilience in at-risk students.

One area in education where success is critical for individuals is literacy. Achievement in literacy enables individuals to participate within and beyond the education system. One population that has attracted interest within resilience research is children with literacy learning difficulties (LLD). There are several reasons for this interest. Firstly, children with LLD are deemed at-risk for maladaptation due to their difficulties in literacy development. Longitudinal research has found that adversity in terms of academic achievement at elementary school accounted for a large portion of variance in academic

competence in young adulthood (Masten et al., 2004). Secondly, literacy difficulties are chronic in nature; thus, children are confronted by their literacy difficulties on an unrelenting basis (Ofiesh & Mather, 2012). The ongoing condition of stress also places children at greater risk of maladaptation in terms of wider academic achievement (Forrest-Bank & Jenson, 2015). Lastly, LLD cannot be solely restricted to maladaptation in academic achievement outcomes. Research has indicated that negative spinoff effects from literacy difficulties means that children with LLD may be at greater risk of maladaptation in other areas that include psychosocial development. Thus, literacy learning difficulties are situated within a broader context (Sorensen et al., 2003), which may be why children with LLD have been found to be at-risk of general maladjustment in education (Margalit, 2006).

Developmental constraints are an important consideration that influences not only the identification of salient risk and protective factors but also the capacity of children with LLD to adapt during circumstances of risk. The developmental underpinnings of LLD as a risk factor as well as moderating factors that include self-esteem and self-efficacy have been reviewed earlier in this thesis. However, as Rutter (1987) argued, understanding the processes that influence adaptation for at-risk individuals suggests that it is the interactions in the educational context that are influential when investigating associations between risk (literacy learning difficulties) and adaptation.

Numerous variables have been implicated in the development of resilience in students with LLD, within the educational context. Within Bronfenbrenner's ecological systems theory, these factors may be viewed within the proximal or distal systems of children with LLD. Factors within the distal systems appear to be less effective at fostering resilience in students. In a two-year study of 7 to 11 year old children with LLD, Sorensen et al. (2003) investigated differences in academic functioning in students with and without individualised education plans (IEP). IEPs are a distal factor within the exosystem because decision-making

regarding IEPs primarily occur at school-level and do not require student input. Sorensen and colleagues found no differences between the two groups in terms of academic functioning. Interestingly, students with LLD that held IEPs did not demonstrate any increases in academic functioning in the (mainly) literacy-based outcomes over the two-year period. This indicates that IEPs did not facilitate increases in competence for students with LLD by increasing the likelihood of gains occurring in literacy and other academic outcomes.

Luthar et al. (2006) argue that the relationship between the teacher and the at-risk student is fundamental to promoting adaptation. Much of the research pertaining to the teacher-student (LLD) relationship has related to other variables, such as self-esteem and self-efficacy, which moderate the condition of adversity. While research tends to suggest that teachers can facilitate educational success via positive feedback, goal setting, formative assessment (Hattie & Timperley, 2007), praise (Casserly, 2013), and beliefs (Hettinger, 1982), the teacher has also been implicated in the maladaptation of at-risk students. According to O'Connor and McCartney (2007), the relationship between the student and teacher is an essential element of the proximal classroom (microsystem) system. In their longitudinal study of children from birth to adolescence, they found that at 3rd grade achievement was influenced by the quality of the relationship between the teacher and student. Students with low quality relationships demonstrated low achievement that placed them at-risk for maladaptation. While it is difficult to determine the direction of the association between teacher-student relationship and achievement in this study, the teacher-student relationship superseded both maternal attachment and peer relationships at Grade 3. This reinforces the notion that student-teacher relationships are influential in the development of resilience in at-risk students. Furthermore, research indicated that teacher attention was negatively associated with achievement in at-risk students as well as mediating the engagement of these students in classroom tasks (O'Connor & McCartney, 2007).

Recognition of LLD by teachers also appears to have a differential effect on the development of resilience. Lackaye and Margalit (2006), in their research of 7th grade students with and without LLD, found that teachers recognised the learning difficulties of students with LLD. It can be suggested that this recognition could be a protective factor in facilitating adaptation. It was found that teachers expected students with LLD to exert more effort than their non-LLD counterparts in order to meet the learning demands of the school. However, students with LLD and other at-risk students for low achievement were found to exert less effort and engage less in study. This arguably placed students with LLD at further risk of maladaptation. However, while LLD was used as the basis for group comparisons for the research, and as such constituted the risk factor, academic self-efficacy predicted effort for both groups of students in the study. Lackaye and Margalit (2006) concluded that underpinning the ability of students with LLD to develop resilience might be their lower perceptions of competence and their lowered ability to utilise available resources within the educational context.

Sorensen et al. (2003) found that teacher perceptions were also predictive of psychosocial adjustment in at-risk students and were most strongly related to the level of academic support that children received. Students with LLD, whose academic support decreased over the two-year period, were viewed as demonstrating adverse psychosocial development in multiple areas that included social, academic, and behaviour; the opposite was found for students with LLD for whom services increased. Overall, it appears that teachers' perceptions of competence are influential in the ability of students with LLD to adapt to the on-going risk that LLD presents. This has been supported in literature (Hettinger, 1982; Hornstra, Denessen, Bakker, van den Bergh, & Voeten, 2010). Overall, teacher perceptions can negatively affect at-risk students' ability to develop resilience. Similar

findings are also evident within literature (Hettinger, 1982; Kuklinski & Weinstein, 2001; Leung & Choi, 2010; Rubie-Davies, 2006).

In Summary

The self is an integral part of an individual that develops across the lifespan. This literature review focused on two known areas of the self: self-esteem and self-efficacy. Two aspects appear to be integral to the development of self-esteem and self-efficacy. At the forefront are the individual and his or her perceptions of experiences that occur within the social world. Then there are the evaluations that individuals make of their experiences or interactions within their social world. The social world is integral to the development of self-esteem and self-efficacy because this is where perceptions of competence are formed. Perceptions of competence have been widely implicated in the development of self-esteem and self-efficacy of students with LLD because these students tend to perceive themselves as less competent than their counterparts. This implicates significant others, as frames of reference, as influential in the development of self-esteem and self-efficacy. However, perceptions of competence appear to be influential in different ways. For self-esteem, perceptions of competence are used to form an individual's perception of him or herself, which means that self-esteem is largely a product of previous experiences that may be highly influenced by defining memories. However, for self-efficacy, perceptions of competence contribute to forming perceptions of ability that specifically relate to enacting aspects of an individual's self. So while previous experiences are important, future experiences are also influential in the development of self-efficacy. These differences in temporal orientation as well as the trait-like versus state-like nature underpin debate regarding the malleability of these constructs. Self-efficacy is more closely related to specific tasks, which makes the context extremely influential. The value that students place on the tasks within contexts influences whether experiences will be efficacious, which might also influence the

perceptions of competence that influence self-esteem. Both self-esteem and self-efficacy are firmly entrenched in cognition, which posits the development of these areas along a trajectory; although, self-esteem has been posited as also including an affective component.

The developmental trajectory of self-esteem and self-efficacy means that both constructs are differentiated and hierarchical in nature. While debate exists as to when this occurs in children, research has indicated that these constructs can be differentiated in young children, although the degree and stability of differentiation is influenced by cognitive development. Self-esteem and self-efficacy have been of increasing interest within education, especially in regard to children with LLD, who often develop lowered levels of self-esteem and self-efficacy. Academic self-esteem has been targeted in research due to its association with academic achievement in students with LLD. However, one should not ignore the relationship between academic achievement and self-efficacy, given that research has indicated that levels of achievement that influence self-efficacy in one domain may also cross domains to positively or negatively influence development within other sub-domains of self-efficacy. It is also apparent that variables exist that mediate the association between these areas and academic achievement, meaning that heterogeneity is often found in research.

Another aspect of the self that has garnered much interest in research is resilience. Within the broad framework of human development, resilience is a dynamic process that develops within the systems in which an individual develops that enables the individual to adapt during times of risk. Fundamental to resilience is the association between risk and adaptability, although debate exists regarding what constitutes risk and adaptation or maladaptation. However, variables also exist that moderate the association between risk and adaptability with some variables directly influence the risk or outcome variables, which are known as protective factors, while other variables influence the association through their indirect influence on risk or outcome variables and are known as promotive or compensatory

factors. Current research tends to focus on how these variables moderate the association between risk and adaptability. Resilience has also been of key interest within education due to the chronic and pervasive nature of LLD in students, which increases the likelihood of maladaptation for this population. Risk of maladaptation for students with LLD has also been found to extend beyond academic functioning to affect psychosocial development that includes self-esteem and self-efficacy. It appears that proximal systems are influential to fostering resilience in students with LLD. This suggests that relationships within the proximal systems might be influential to facilitating adaptation in students; however, it is also evident that these relationships may place students with LLD at further risk for maladaptation, which makes investigating resilience within education, for students with LLD, imperative.

Psychosocial and Literacy Interventions with Children with Literacy Learning Difficulties (LLD) – A Dual Approach

Being literate is an integral aspect of contemporary society. This literature review has outlined the difficulties that may occur for some students in their literacy development. Understanding the literacy difficulties of students is essential to developing interventions that seek to remediate or prevent literacy difficulties. However, LLD do not occur in isolation. One area that has been associated with LLD is psychosocial development. Literature suggests that the association between psychosocial development and LLD is reciprocal, which makes understanding this association highly relevant to current educational research, albeit highly complex. One factor contributing to the complexity of intervention research is the heterogeneity that exists within literature regarding the association between LLD and psychosocial development. This may be why intervention research, even those with a dual literacy and psychosocial focus, has tended to emphasise either LLD or psychosocial development. The multi-dimensional nature of literacy and psychosocial development also

adds complexity to intervention research because children may experience difficulties within different areas of literacy and psychosocial development.

Intervention research into LLD and psychosocial development is crucial. Difficulties in literacy development have been found to emerge early in a child's formal education (Chapman & Tunmer, 2003) and these difficulties are often pervasive due to the dominance of literacy within the school setting. Chapman, Tunmer, and Prochnow (2000), in a longitudinal study of early literacy development, found that children demonstrated negative attitudes towards literacy at age five. These negative attitudes were apparent in some children as early as six to eight weeks after they had commenced formal schooling. By the end of their first year of schooling, assessment indicated that these students were demonstrating LLD and were achieving less well on reading assessments, in comparison to their peers (Chapman et al., 2000). These children were also associated with low academic self-esteem. Anderson and Meier-Hedde (2011) found that students with dyslexia experienced literacy difficulties as soon as graphemes (letters) and phonemes (sounds) were introduced to students, regardless of the age that formal instruction commenced. They found that maladaptive self-referential statements affected students' attitudes towards learning, which affected their academic achievement.

For older low progress students, a focus on LLD and psychosocial development is imperative due to the influence of negative spinoff effects. These effects can be found within literacy, such as vocabulary, concept knowledge, and comprehension strategies as well as within psychosocial development, such as peer acceptance and teacher perceptions. However, the bi-directional association between literacy and psychosocial development results in reciprocal effects within both areas. It is likely that these reciprocal effects become greater over time for older primary students with LLD. This is because psychosocial development is heavily embedded within past experiences and the convictions and perceptions of older

students with LLD have been found to become increasingly differentiated and stable over time. The severity of LLD for students is also likely to increase as students age, due to the greater emphasis placed on literacy proficiency via increased curriculum demands. These factors influence the ability of students to adapt to the on-going risk of LLD. Within the New Zealand context, there is ample evidence that Reading Recovery, the only ministry funded (early) intervention for LLD, does not remediate LLD for all students. Decision-making regarding the remediation of literacy difficulties in older primary students occurs at school-level; however, as Therrien, Zaman, and Banda (2010) noted, selecting and implementing effective practices can be problematic for school staff. Determining the efficacy of evidence-based interventions is integral to supporting LLD in older primary students.

Many interventions involving students with LLD have focused on aspects of LLD (see Goodwin & Ahn, 2013 for a meta-analysis; Kirk & Gillon, 2009; Wolter & Dilworth, 2014; Wolter & Green, 2013) or psychosocial development (Ghilay & Ghilay, 2015; Jones, Brown, Hoglund, & Aber, 2010; Reyes, Brackett, Rivers, Elbertson, & Salovey, 2012). There is a dearth of research that has included a dual focus on remediating LLD and psychosocial development. The majority of existing intervention research appears to relate to children with LLD and self-esteem. This may be partly due to self-efficacy having a much shorter history than self-esteem or the fact that research may treat these constructs synonymously. However, Mruk (2006) argued that self-esteem has also been subject to faddism within education, due to the plethora of programmes that emerged out of popular psychology. As previously mentioned, the same is likely for resilience, which makes determining effective interventions essential.

It appears that research is influenced by different factors that include the characteristics of the student, the intervention, and the outcome. Individual differences are likely to influence the effectiveness of interventions. This is because heterogeneity exists for

students with LLD. This heterogeneity applies not only to the difficulties students experience in their literacy development, but also to the value that students place on areas of literacy development and dimensions of the self that influence the evaluations that students make of their experiences. This suggests that individuals or groups of individuals can respond differently to the same intervention, thus, resulting in different effects (Therrien et al., 2010). This is evident in the meta-analysis by Elbaum and Vaughn (2003) who found that students with LLD who held low levels of self-esteem showed a larger effect (ES = 1.22) in terms of their psychosocial development in comparison to students with average self-esteem (ES = .23) and high self-esteem (ES = 0.23). However, it is noted that these effect sizes included interventions other than academic.

The risk factor underpinning the sample of students within the intervention may be influential to intervention outcomes. A meta-analysis by Hoagwood et al. (2007) found that school-based interventions, where the sample selection included socio-emotional risk factors (characterised as mental health), were more likely to have positive effects on mental health outcomes. Fewer interventions were found to have positive effects on academic outcomes and these effects were less likely to hold over time, leading the authors to conclude that effects were only modest. Hoagwood et al. (2007) suggested that the lack of specific academic focus within the intervention was a reason for low effects; however, they acknowledged that some interventions contained an academic component. In contrast, Elbaum and Vaughn (2001), in their meta-analysis of school interventions where the samples were underpinned by LLD (risk factor), found that self-esteem responded better to academic interventions over the more prevalent counselling interventions, for elementary school students. They also noted that academic interventions had greater effects for academic self-esteem; whereas, global self-esteem was found to respond better to counselling interventions.

These findings suggest that consideration of the risk factor; that is, the characteristic of the student is instrumental when interpreting intervention research.

According to Elbaum and Vaughn (2003), research involving students with LLD and self-concept has comprised three types of interventions that primarily included counselling, mediated, and academic interventions. However, delineating between academic and psychosocial interventions can be problematic because of the crossover between components within interventions. In their review of cooperative learning interventions for children with LLD that targeted academic achievement, Sencibaugh and Sencibaugh (2016) found that cooperative interventions that contained peer tutoring, structured group work, and peer assistance revealed positive effect sizes. These interventions were considered academic interventions; however, they also included a focus on developing interpersonal relationships, which is arguably psychosocial in nature. Spitzer and Aronson (2015) noted similar findings in their review of social psychology interventions that targeted achievement gaps (and therefore included students with LLD). These psychosocial interventions were noted to include mediation, reappraisal, and mindset components; however, they also included academic skill-based exercises. While they noted that interventions were underpinned by psychosocial functioning this was achieved, at times, by targeting academic performance. Similar patterns are evident within literature (Daki & Savage, 2010; Hughes & Fredrick, 2006).

The focus of interventions relating to students with LLD can also be influenced by how researchers conceptualise psychosocial development. Burton (2004) remarked that interventions should focus on either modifying aspirations or achievement because self-esteem is strongly influenced by the discrepancies that emerge between an individual's aspirations and his or her actual achievements. However, Humphrey (2004) espoused the importance of social contexts in influencing self-esteem and the role of praise in early

intervention. Other research with students with LLD and psychosocial development has focused on the correlates that have been implicated in the relationship between LLD and psychosocial development. This includes peers (Burden & Burdett, 2005; Gans, Kenny, & Ghany, 2003), teachers (Glazzard, 2010), and peers and teachers (Casserly, 2013). The different foci may be why variation has been found in terms of the effectiveness of interventions within the educational context.

While it is generally accepted that a reciprocal relationship exists between LLD and psychosocial development, some interventions appear to be underpinned by a trajectory. According to Spitzer and Aronson (2015) social psychology interventions target socio-emotional experiences of students with LLD in order to reduce anxiety and attention difficulties that in turn negatively influences academic performance. However, in contrast Elbaum and Vaughn (2001) found that academic interventions had greater effects on academic self-esteem students with LLD, suggesting that academic performance is influential to psychosocial development. This association between students with LLD and psychosocial development aligns with resilience literature that posits the importance of the relationship between the risk factor and adaptability.

Interventions for students with LLD that focus on the remediation of LLD with the aim of fostering psychosocial development are scarce. While there is much research on the remediation of LLD or the remediation of psychosocial development, few studies involving the remediation of LLD have extended their focus to include psychosocial outcomes. This is surprising given that research has 1) found an association between LLD and psychosocial development, 2) found that students with lower skill levels were more likely to develop lower academic self-esteem or academic self-efficacy, and 3) found that students with more difficulties or more severe difficulties are more likely to have lowered academic self-esteem or academic self-efficacy. Overall, LLD acts as a risk factor for students that increase their

likelihood of maladaptation, which can be exacerbated as students progress through their education, due to the reciprocal nature of their relationship and the influence of negative spinoff effects.

Interventions relating to students with LLD and psychosocial development are complex. Heterogeneity is apparent in students with LLD, as well as, in the plethora of interventions that have been enacted to promote psychosocial development, and the multitude of outcomes that may be the focus. Heterogeneity means that students with LLD might respond an intervention differently, which further increases the complexity of determining effective interventions in this area. It is also difficult to delineate between different types of interventions, which may contain elements of other intervention types, although current literature appears to indicate that for elementary aged students with LLD, academic interventions result in greater gains on psychosocial development. Literature also appears to indicate that students with low self-esteem may demonstrate greater effects in their psychosocial development than students with LLD whom hold average or high levels of self-esteem. Focusing on academic interventions is advantageous due to the fact that outcomes within literacy and psychosocial areas may be positively influenced. This appears to be especially important for older students with LLD who are at continued risk of maladaptation in literacy outcomes as well as general maladjustment.

Chapter 3

Study One-An Investigation of the Effectiveness of a General Literacy Intervention on the Psychosocial and Literacy Development of Students with LLD in Year 4 to Year 6

Selection and Development of Measures for Assessment

The psychosocial development of students with literacy learning difficulties (LLD) has featured within research literature to some degree. Much of the literature pertaining to the psychosocial development of students with LLD has focused on self-esteem. Some attention has been given to self-efficacy, as well as, the role of risk and adaptation and the development of resilience in students with LLD. Determining the association between LLD and psychosocial development has led to variable results and is influenced not only on how each constituent area is conceptualised and defined but also the research methodology that underpins the research. Research has investigated the factors that influence the development of self-esteem in students with LLD. The focus has mostly been on how self-esteem can be positively influenced within the educational context, via interventions or aspects that focus on psychosocial development. Less research has focused on the association between literacy development and self-esteem, via a change in literacy development.

The studies within this thesis were concerned with determining whether the psychosocial development of students with literacy learning difficulties (LLD) could be affected by an academic intervention that focused on literacy development. The studies were also concerned with whether the targeted intervention could promote the literacy development of students with LLD. Critical to addressing the research questions within this thesis was the development of an assessment battery for Study 1. The assessment of literacy

and psychosocial development in Study 1 needed to demonstrate variability in responses from participants to ensure its efficacy for the subsequent studies (Chapter 4 and Chapter 5); as well as, demonstrating reliability and validity in terms of the variables being measured Mertens (2010). This meant ensuring that the content of the measures included a level of complexity that encapsulated the literacy and psychosocial development of students within the sample at pre- and post-intervention and that the measures assessed the associated understandings. Decisions regarding the inclusion of measures were informed by literature and the measures that had previously been used to measure literacy and psychosocial development within research. However, the assessment battery was not all encompassing. The current section provides a rationale for the inclusion of measures into the assessment battery. A framework of the measures is provided in Table 1. Specific details of the assessment measures are provided within the methodology section of Study 1. A rationale for the selected academic intervention, Seven*Plus* is provided (Marriott, 2013). The rationales and descriptions in this chapter serve as a reference point for further discussion of the assessment battery and intervention format throughout the thesis.

A Rationale for Assessment Measures

Literacy Skills

Reading accuracy.

Reading accuracy was included as an indicator of students' word level reading ability. Reading accuracy is a fundamental aspect of many theories of reading development and was viewed as a task that required students to utilise multiple skills. These skills included sight word reading skills, which Ehri (2007) defines as words automatically recalled from memory, as well as, speed, accuracy, and word recognition, which according to Gough and Tunmer (1986) underpin skilled decoding. Furthermore, within the SVR model, decoding skills

(context-free) are a prerequisite for the development of reading comprehension (Gough & Tunmer, 1986), which makes the inclusion of reading accuracy important as a measure of reading development. Research has found that children with LLD can be less skilled in word analysis. However, debate regarding the role of contextual redundancy in reading difficulties means that including different forms of reading accuracy is important. Furthermore, in New Zealand, context is a key component of reading development, thus including two forms of reading accuracy acknowledges literature as well as the influences of the New Zealand education system on the reading development of students. Two measures of reading accuracy were included. The Burt Reading Test, developed by the Scottish Council for Research in Education (SCRE, 1974) was selected to measure single word reading accuracy. The composition of this measure provided a range of words that would enable all students to be assessed pre- and post-intervention, regardless of their current level of proficiency. Furthermore, this measure has been commonly used within New Zealand schools and was easily accessible to the researcher. The second outcome measure included the accuracy component from the Neale Analysis of Reading Ability (NARA) (Neale, 1999), which measured students' ability to read words within a text context. The NARA contains six levelled texts of increasing complexity, which provided students with the opportunity to apply both sight-word reading skills and decoding skills within the context of multiple texts. The NARA was selected over other forms of reading accuracy that included Running Records, Probe, and Informal Prose Inventories because the NARA formed a continuous assessment and was a standardised measure; whereas, the other forms of assessment formed non-standardised single assessment items that would increase the complexity of data gathering.

Reading comprehension.

A reading comprehension task was included as a measure of students' ability to derive

meaning from text. Within the SVR model (Gough & Tunmer, 1986), reading comprehension is the product of decoding skills and linguistic comprehension. However, reading comprehension may be impaired for multiple reasons that include difficulties in decoding (word-level reading), linguistic comprehension, or difficulties in both areas (Gough & Tunmer, 1986). The remediation of word-level skills may also make difficulties in reading comprehension apparent, due to the interaction with linguistic comprehension, which makes the assessment of reading comprehension important (Spear-Swerling, 2004). The NARA (Neale, 1999) measure was selected to measure comprehension in the study. The NARA contains prescribed comprehension questions for each level, which measured both literal and inferential comprehension. The NARA also contained parallel forms of the series of levelled texts, which allowed different forms of the measure to be administered at two testing points, in order to gain an accurate picture of reading comprehension.

Morphology.

Two measures of morphological awareness were included in the assessment battery. The inclusion of morphology measures was viewed as important for several reasons. Firstly, the role of morphology in literacy development is well documented in literature. Berko (1958) and Clark (as cited in Carlisle & Goodwin, 2013) found that children began to develop implicit knowledge of the morphemic system early in their literacy development. Secondly, morphology plays an increasingly important role in the development of literacy skills as students move through their elementary years. Students' knowledge of derived words increases dramatically from Grade 3 to Grade 5 (Anglin, 1993) and students are exposed to increasingly morphologically complex words (Carlisle, 2000). Research has also identified that morphological awareness is an influential factor in the development of multiple literacy skills in children that includes word reading, word recognition, vocabulary, spelling, fluency, and reading comprehension (Apel & Lawrence, 2011; Apel, Wilson-

Fowler, Brimo, & Perrin, 2012; Kirby et al., 2012; Nagy & Anderson, 1984; Nagy, Berninger, & Abbott, 2006). Thus, it could be suggested that reading development could be influenced by the development of morphological skills, which makes their assessment important to the current research. Furthermore, the inclusion of morphological measures acknowledged the morphological aspect of the intervention used within the research. Marriott (2013) had observed that older progress readers often demonstrated deficits in morphological skills. Two morphological awareness measures were included in the assessment battery that included a context-free and a context-bound measure. As for reading accuracy, it was also viewed as important to control for the influence of context in the morphology measures. The judgement measure was included as a measure of students' ability to consciously think about the semantic relationships between sets of words, within a context-free environment. The morphological production measure (morpho-syntactic) was included as a measure of students' ability to consciously transform base words, within a sentence context.

Rate of reading.

Rate of reading was included in the study as a measure of a student's reading speed. Including a rate of reading component was viewed as important because reading speed has been posited as an important aspect of skilled decoding (Gough & Tunmer, 1986). It was viewed that improvements in word level skills might positively contribute to the speed at which students read texts. The rate component of the NARA measure was selected as a measure of reading speed. Using the rate component of the NARA was viewed as advantageous because it contained a formula the number of words of a text that students' read per minute. Furthermore, the inclusion of reading speed did not add any additional constraints or measures to the assessment battery.

Psychosocial Development

Self-esteem.

Two measures of self-esteem were included in the psychosocial component of the study. In the current study, global self-esteem refers to how an individual perceives him or herself overall, while academic self-esteem refers to how a student perceives him or herself in relation to their academic abilities. Including two different measures was fundamental. The development of self-esteem is widely agreed to be multi-dimensional and hierarchical; however, it is contentious in literature as to exactly how this emerges (Trautwein et al., 2006). Many researchers adopt a stance of reciprocity between global self-esteem and domain-specific areas. Research has noted that multi-dimensional self-esteem is measurable by 8 years of age (Marsh et al., 1991). However, less differentiation is evident at younger ages; thus, the age at which academic and global self-esteem emerge to be influential dimensions remains questionable and may be influenced by individual differences (Ehm et al., 2014). While deficits in one dimension of self-esteem, such as academic self-esteem, have been argued as being less likely to affect an individual's global perception (Chapman, 1988), there has been a lack of differentiation between domains within research. An association between learning difficulties and academic self-esteem has been identified within research; however, findings have been variable (Burden & Burdett, 2005; Gans et al., 2003; Hettinger, 1982). It was viewed that measuring academic and global self-esteem at pre- and post-intervention would provide insight as to indicate whether students were operating at academic or global levels. Students operating at a global level may demonstrate less differentiation in the academic self-esteem task, while students who operated at an academic level may show increased stability in scores for the global self-esteem measure. The Rosenberg Self-Esteem scale was selected as the measure of global self-esteem. The scholastic competence subscale of the Self-Perception Profile for Children (Harter, 2012b)

was selected as the measure of academic self-esteem. This subscale had specifically been developed for children from Grade 3 to 8 and can be used independent of the other subscales involved in the profile.

Resilience.

Resilience refers to the process that develops within the systems in which an individual develops that enables him or her to cope with risk when experiencing adversity. Resilience was included in this battery because it has been suggested that LLD acts as a risk factor for students due to the pervasive nature of these difficulties, which has been attributed to the high focus on literacy development in schools (Ofiesh & Mather, 2012). Research into the field of resilience has increased over the last few decades, along with the development of multiple measures of resilience; however, there remains a lack of measures that can be administered to children. In a review of resilience scales, Windle, Bennett, and Noyes (2011) identified nineteen measures; however, only one measure included children (under the age of 12 years) as their target population. The manageability subscale of the Sense of Coherence-Orientation to Life Questionnaire by Antonovsky (1987) was selected to measure resilience in this study. This subscale measures students' perceptions of control and confidence within their lives, which was deemed to be reflective of how a child may manage the stressful life event of LLD (Werner, 2000a). This measure has been used as an indicator of resilience in previous research involving a sample of children (see Eriksson & Lindström, 2006).

Self-efficacy.

General self-efficacy refers to the personal judgements that a student makes about his or her capability to perform tasks in order to achieve specific goals in the future (Zimmerman, 2000). According to Bandura (1997) four sources exist that underpin personal judgements and the development of self-efficacy that include: mastery (success in learning),

vicarious learning, verbal feedback, and physiological or psychological feedback. It was viewed that if participating in the intervention resulted in changes as to how students' perceived their literacy capabilities, then this would be reflected in the self-efficacy measure (Pajares, 1996). The Self-Efficacy Questionnaire for Children was selected for this study (Muris, 2001). Specifically developed for use with children, this questionnaire measured general self-efficacy, as well as, social, emotional, and academic subscales. These subscales have been postulated as interacting to influence the development of general self-efficacy (Oettingen, 1995).

Reading attitude.

Reading attitude refers to how individuals feel about the act of reading. According to Kush and Watkins (1996) reading attitude is influenced by affective factors, which can increase or decrease the likelihood that students will engage in reading that may affect reading development. Given that an individual's affect is also influential to the development of self-esteem, it was surmised that an association might exist between reading attitude and self-esteem. The Elementary Reading Attitude Survey developed by McKenna and Kear (1990) was selected to measure reading attitude. Devised specifically for use with primary (elementary) students, this tool measures change in a student's overall reading attitude, as well as, academic and recreational reading attitudes.

Table 1. *An Index of Tests of the Assessment Battery (Study 1)*

Literacy Development	Test/Component
Accuracy	Burt (single word reading)
	NARA-accuracy (text based word reading)
Comprehension	NARA-comprehension (literal, inferential)
Rate	NARA-rate (text levelled passages)
Morphology	Morphological Awareness (judgement)
	Morphological Production (morpho-syntactic)
Psychosocial Development	**Test/Subscale**
Global Self-Esteem	Rosenberg Self-Esteem Scale
Academic Self-Esteem	Self-Perception Profile for Children-Scholastic Competence subscale
Resilience	Sense of Coherence-Orientation to Life Questionnaire-Manageability subscale
General Self-Efficacy	Self-Efficacy Questionnaire for Children
Academic Self-Efficacy	
Social Self-Efficacy	
Emotional Self-Efficacy	
Reading Attitude	Elementary Reading Attitude Survey
Recreational Reading	
Academic Reading	

A Rationale for the Intervention Programme

As part of the National Literacy Strategy, the New Zealand government acknowledged that some students, during their formal education, would require assistance in their literacy development, in the form of specialist teaching (Ministry of Education, 2010b). The creation of Resource Teachers of Literacy (RT: Lit) included the completion of a mandatory postgraduate literacy qualification and subsumed the existing role of Resource Teachers of Reading. RT: Lits enabled students from Year 0 to Year 8, whom were identified as being at-risk in their literacy acquisition, to receive specialist support for their literacy development (Ministry of Education, 2010). This support for at-risk students can be provided directly or indirectly via individual or small group tuition, or via collaboration with classroom teachers, school principals, and literacy leaders within clusters of schools (Ministry of Education, 2010b).

RT: Lit Chuck Marriott developed Seven*Plus*, an intervention for older struggling readers, in response to his experiences with older at-risk students, within the New Zealand education system. Marriott (2013) observed and subsequently identified several points of interest based on his experiences that included:

- Students developing negative attitudes towards reading and reluctance to engage in literacy instruction.
- Students demonstrating difficulties in decoding unknown words, especially multisyllabic words. Students having limited word-level skills that included limited phonological and morphological skills.
- Students demonstrating an over-reliance on contextual factors contained within texts, when attempting to decode unknown words.

- Students demonstrating lower levels of fluency when reading texts.
- Students demonstrating an underdeveloped vocabulary in comparison to typically developing students.

According to Marriott (2013) an intervention was required for two fundamental reasons. Firstly, the reading needs of older low progress students needed to be met. Secondly, the learning of low progress readers needed to be accelerated. Marriott (2013) identified three key areas underpinning the literacy difficulties of at-risk students that included: decoding, vocabulary, and fluency. Decoding was defined as the ability to decode multisyllabic words using a variety of strategies (Marriott, 2013). The decoding component was underpinned by an emphasis on the use of the CVC syllable structure with morphological support. The vocabulary component was underpinned by the notion that low progress readers should be exposed to a wide range of vocabulary. According to Marriott (2013) this should occur through the use of age-appropriate texts that provide students with opportunities to experience complex vocabulary, as opposed to current literacy practices of using instructional texts at the students' reading-age. Marriott did caution against exposing students to wider and more complex vocabulary without scaffolding during the reading process. Within Seven*Plus*, scaffolding is provided via explicitly instruction in selected vocabulary prior to the fluency component of the intervention. Fluency was defined as accuracy, expression, and speed and was incorporated within a repeated reading process that used an impress model as a model of a fluent reader (Marriott, 2013). According to Marriott (2013) explicit instruction in these three components contributes to bridging the gap between decoding and reading comprehension. Seven*Plus* is targeted at students from Year 4 that have a reading age of at least seven years but that are at least one year behind than expected in their reading development. Seven*Plus* has a variable intervention period ranging from six weeks onwards (Marriott, 2013).

The rationale for utilising Seven*Plus* in Study 1 was as follows. Firstly, Seven*Plus* was developed for students with LLD that were the targeted sample within this research. Secondly, Seven*Plus* targeted literacy development through a focus on word-level and text-level skills, aimed at increasing students' perceptions of competence. Thirdly, the intervention acknowledged the importance of psychosocial development in older low progress readers. This was achieved via text selection and the use of engaging age-appropriate texts that sought to develop decoding skills and vocabulary, as well as, positive learning experiences. The inclusion of these factors may contribute to facilitating the development of self-esteem and self-efficacy in these students. The intervention also acknowledges the role of peers, in the development of self-esteem and self-efficacy. Seven*Plus* also met several of the methodology criteria for Study 1 that included a focus on students in the upper primary school years, an application at group level, and a targeted duration of around six weeks.

Research Questions

The aim of the study was to examine the effectiveness of a targeted intervention on the psychosocial development of students with literacy learning difficulties (LLD). The study was also concerned with whether the targeted intervention would affect the literacy development of students with LLD and whether change in literacy development was associated with change in psychosocial development. The following research questions were identified:

1. Does a targeted intervention, which includes instruction in general literacy skills, promote psychosocial development in students with LLD?

2. Does the literacy development of students with LLD improve over the period of the targeted intervention?

3. Is change in the literacy development of students with LLD associated with change in psychosocial development?

Method

Participants

This study involved 20 students from Year 4 to Year 6 who attended a Decile 3 contributing primary school, in an eastern suburb of Christchurch, New Zealand. In order to be eligible for participation in the intervention group, the Deputy Principal in charge of the senior students of the participating school had to identify a student as having LLD in reading. The Canterbury earthquake sequence that commenced in September 2010 had resulted in a transitory effect for many students, especially within the eastern suburbs of Christchurch. This meant that longitudinal school data regarding students' literacy development was not accessible. As such, LLD in reading was defined as a student who had made little progress or a lack of progress, in their reading development for the duration of their education at the participating school. Students were not eligible to participate in the intervention group if they were currently receiving any individualised support for their literacy development within the school context.

One incoming student to the school was identified by the Deputy Principal as LLD in reading and joined the study at Session 9. The final sample consisted of 21 students (12 male and 9 female) who ranged in age from 8 years 6 months to 11 years 5 months. The sample included 13 students from Year 6, five students from Year 5, and three students from Year 4. Of the 21 students, five were identified by the school as meeting the eligibility criteria for Ministry of Education funding as English as Speakers of Other Languages (ESOL). The criteria includes funding for both migrant and refugee students, as well as, funding for New Zealand born students with at least one parent holding migrant or refugee status, with a

language other than English being spoken in the home environment (Ministry of Education, 2016b). In the current study all 21 students used the English language. Parents and caregivers of 20 students provided written informed consent for their child's participation in the study. The Deputy Principal obtained oral informed consent from the parent of one student and an attestation of this consent was provided. All students provided personal assent to participate in the study, prior to the collection of pre-intervention data.

Two control groups were utilised in the study that comprised the remaining students, from Years 4 to 6 (n = 101), of the participating school. Control Group 1 (n = 10) included nine Year 5 students and one Year 4 student participating in a school-led alternate intervention for their literacy development. Control Group 2 (n = 91) included the remainder of students from Years 4 to 6. These students had been identified by the Deputy Principal as primarily progressing in their reading development at the expected, or above the expected, rates developed by the school in accordance to National Standards, which set standards for achievement in the first eight years of schooling (Ministry of Education, 2009). Differences in the mean and range of ages between Control Group 1 and the Intervention Group and Control Group 2 were attributed to Control Group 1 comprising mostly Year 5 students. The principal of the participating school provided consent for the collection of control data. All students in Years 4 to 6 provided personal assent prior to the collection of control data. Demographic information for the groups is presented in Table 2.

Table 2. *Demographic Information for Participants (Study 1)*

	Intervention Group	Control Group 1	Control Group 2	Difference	Effect Size
Age					
M (SD)	10.27 (0.93)	10.00 (0.30)	10.20 (0.86)		
Range	8: 6 – 11: 5	9: 3 – 10: 5	8: 7 – 11: 7	$p = .714$	$\eta^2 = .005$
Gender					
Female	42.9% *(n = 9)*	60.0% *(n = 6)*	53.8% *(n = 49)*		
Male	57.1% *(n = 12)*	40.0% *(n = 4)*	46.2% *(n = 42)*		*Cramer's V*
Total	100% *(n = 21)*	100% *(n = 10)*	100% *(n = 91)*	$p = .584$	= .094
Year Level					
Year 4	14.3% *(n = 3)*	10.0% *(n = 1)*	31.9% *(n = 29)*		
Year 5	23.8% *(n =5)*	90.0% *(n = 9)*	30.8% *(n = 28)*		
Year 6	61.9% *(n = 13)*		37.4% *(n = 34)*		*Cramer's V*
Total	100% *(n = 21)*	100% *(n = 10)*	100% *(n = 91)*	$p = .001$	= .094

Note. Age = total months/12.

Assessment Measures

A description of the measures used to assess literacy and psychosocial development is provided below.

Literacy Measures

The Burt Reading Test.

The Scottish Council for Research in Education (SCRE) developed the Burt Reading Test (Burt) in 1974. This standardised test is individually administered and is suitable for children from 6 years 4 months of age. The test demonstrates high internal consistency, with the Kuder-Richardson Formula 20 test, yielding reliability co-efficient of .97 (SCRE, 1974). In the current study, a Cronbach's alpha of .96 was calculated. The test comprises of 110 words, presented in groups of 10 that increase in complexity. The task was administered according to the guidelines provided by the SCRE that included the test being untimed, the recognition of self-corrections, and the repetition of words if the examiner was unsure of the student's response. Each participant was asked to orally read each set of words from left to right, commencing at the beginning of the test. Testing continued until the student had made 10 consecutive errors. The student was then shown the remaining words and provided with an opportunity to read any additional words. One point was given for each correct response and raw scores out of a possible 110 were collected for analysis. The test assessed students' single word reading accuracy.

The Neale Analysis of Reading Ability.

The Neale Analysis of Reading Ability (NARA) is an assessment of oral reading skills and reading behaviours (Neale, 1999). The NARA contains both standardised and diagnostic components that allow for formal and informal assessment (Neale, 1999). The test demonstrates high consistency, with parallel form reliability consistently yielding reliability co-efficient of over .91 (Neale, 1999). Kuder-Richardson reliability co-efficient test identified high internal consistency for Year 4 to 6 students of over .85 for the accuracy, comprehension, and rate components (Neale, 1999). Reliability tests for the current study

found a high internal consistency for the accuracy (Cronbach's α = .97), comprehension (Cronbach's α = .91), and the rate components (Cronbach's α = .97). The NARA is an untimed test that is administered individually and has been standardised for use with students from 6 years of age. The study used the standardised component that contained two parallel forms, with Form 2 used at pre-intervention and Form 1 at post-intervention. Each form contained two practice texts, as well as, six graded texts that increased in vocabulary and grammar complexity. Administration of the NARA followed the published guidelines provided in the accompanying manual. Each participant was presented with an illustration and was asked to orally read the accompanying text. Students were then asked a series of scripted questions by the researcher, which assessed their literal and inferential comprehension of the text. Testing commenced with Practice Passage Y and continued form Level 1 until the student made a specified number of decoding errors (16 errors for Level 1 to 5, 20 errors for Level 6) in a single text-levelled passage. Raw scores for reading accuracy and comprehension were collected for analysis, and reading times were recorded for each text level that were converted into a rate of reading score. The NARA was used to determine the reading ability of the participants, within a text context, and included word accuracy, comprehension, and rate.

Morphological Awareness-Judgement Test.

The morphological awareness-judgment test was adapted from Nagy et al. (2006). This test required students to make a judgement about the morphological relationship between words. This measure yielded a Cronbach's alpha of .59. Children were visually presented with a pair of words and were asked to judge whether the second word was derived from the first word. If the student indicated that he or she was unable to decode either word within a pair of words, the researcher orally read the pair of words to the student; thus, responses were not dependent on the student's word reading ability. Of the 20 untimed test

items, 10 items were examples of morphologically related words with the remaining 10 items containing morphologically unrelated pairs of words. All 10 items that represented morphologically related words involved derivational morphemes. Derivational morphemes were defined as morphemes that when added to a base word, alter the part of speech (Moats, 2010). Eight of the 10 items included transparent derivational morphemes; thus, the base word and its derived form were phonologically and orthographically transparent (for example, help and helpful). The remaining two items contained derived words with orthographic shifts, which were defined as a derived word that did not contain all the letters of the base form (Apel & Lawrence, 2011). An example of these items is provided below:

Ship: shipment (Correct response: Yes; Transparent)

Able: ably (Correct response: Yes; Opaque: Orthographic shift)

Met: metal (Correct response: No; Morphologically unrelated)

One point was given for each correct response and raw scores out of a possible 20 were collected for analysis. This measure is provided in Appendix 1.

Morphological Production-Morpho-Syntactic Test.

This test was an adaptation from Carlisle (2000). This measure yielded a Cronbach's alpha of .73. The student was presented with a target (base) word that was followed by a sentence. The student was required to transform the base word to produce an affixed word that fit within the context of a sentence. The measure contained 20 items. Fifteen items included inflectional suffixes and four items included transparent derivational suffixes. The final item included an inflectional and a derivational morpheme. The untimed task was visually presented to the child, as well as, being orally read by the researcher, who recorded the student's response. Oral administration by the researcher meant that student's responses

were not reliant on word reading ability. Orthographic shifts within this task were deemed to be irrelevant due to the oral administration of the measure. Each sentence was read a maximum of two times. An example of these items is provided below:

Swim: I usually go (swim) in the sea every Friday. (Correct response: swimming; Inflectional).

Sun: The weather is usually hot and (sun) in Australia. (Correct response: sunny; Derivational)

Play: How many (play) are there in a football team? (Correct response: players; Inflectional/Derivational)

One point was given for each correct response. Raw scores out of a possible 20 were collected for analysis. This measure is provided in Appendix 2.

Psychosocial Measures

Rosenberg Self-Esteem Scale.

The Rosenberg Self-Esteem scale was developed by Rosenberg in 1965 and is referred to in this thesis as global self-esteem. The scale consists of 10 statements that elicit information about an individual's overall evaluation of their sense of worth. According to Gray-Little, Williams, and Hancock (1997), this scale has adequate internal reliability with a Cronbach's alpha of .88. Robins et al. (2001) reported a Cronbach's alpha of .88 to .90 across six assessment points. In the current study, a Cronbach's alpha of .69 was calculated. This measure comprised part of the psychosocial development questionnaire (which included all the psychosocial measures described within this section) that was administered to students in small group format. For this measure, students were read a statement by the researcher. Students were asked to respond to the statement by indicating their level of agreement or

disagreement with each statement, using a 4-point Likert scale. Each item was scored, by assigning a numeric value from 1 (*lowest score*) to 4 (*highest score*), for the ten responses. Raw scores with a maximum of 40 points were collected for analysis.

Self-Perception Profile for Children-Scholastic Competence subscale.

This measure included six questions contained within the scholastic competence subscale of the Self-Perception Profile for Children (Harter, 2012b). In this thesis, the subscale is referred to as academic self-esteem. The subscale elicits information regarding a student's perception of their cognitive competence, specifically in relation to schoolwork (Harter, 2012b). Statements are presented to students through an alternative structure format, which according to Harter (2012b) seeks to minimise socially desirable responses. The subscale demonstrates a high internal consistency, with Cronbach's alphas ranging from .80 to .84 (Harter, 2012b). For the study, the Cronbach's alpha was reported at .87. Students were read two statements by the researcher and were asked to decide which statement reflected him or her most. The students were then asked to decide the degree to which the chosen statement reflected him or her the most and to indicate their answer in the corresponding box. Each item was scored, by assigning a numeric value from 1 (*lowest self-judgement*) to 4 (*highest self-judgement*), to each of the six responses. Raw scores, with a minimum of 6 and a maximum of 24, were collected for analysis.

Sense of Coherence-Orientation to Life Questionnaire.

This measure included 10 questions extracted from the manageability subscale of the Sense of Coherence-Orientation to Life Questionnaire (Antonovsky, 1987). The subscale measures students' perceptions of control within their lives and is referred to in this thesis as resilience. The subscale has a reported Cronbach's alpha of .80 (see Ehde, Lamberty, Dix, & Thompson, as cited in Frenz, Carey, & Jorgensen, 1993). In the current study, adequate

internal consistency was found with a Cronbach's alpha of .72. The subscale contains ten statements that are presented using a semantic differential format. Students were read each statement by the researcher and were required to select a response to the statement using a 7-point scale, with each scale being anchored with semantically different phrases. Each item was scored, by assigning a numeric value from 1 (*lowest score*) to 7 (*highest score*), to the ten responses. Raw scores, with a minimum of 10 and a maximum of 70, were collected for analysis.

Self-Efficacy Questionnaire for Children.

The self-efficacy scale consists of 24 items that measures a child's perceptions of their capabilities to perform desired behaviours in order to meet specific goals (Muris, 2001). In this thesis, the scale is referred to as general self-efficacy. The measure also contains three subscales (academic, social, emotional self-efficacy) of 8 items each. The measure can be used to determine how a child copes and adapts to daily challenges and stressors within life events, which is reflective of subsequent behaviours (Muris, 2001). According to Muris (2001), this questionnaire has high internal consistency, with a Cronbach's alpha of .88 for the full scale and for the academic (Cronbach's $\alpha = .88$), social (Cronbach's $\alpha = .85$), and emotional subscales (Cronbach's $\alpha = .86$). Reliability tests for the current study found a high internal consistency for the full scale (Cronbach's $\alpha = .90$) and academic (Cronbach's $\alpha = .86$) and social subscales (Cronbach's $\alpha = .83$) but not the emotional subscale (Cronbach's $\alpha = .67$). Vocabulary in three questions contained within the academic subscale was altered to suit the educational context of the school. In Question 10, the word *homework* was replaced with the words *home learning*. In Question 19, the word *schoolwork* was replaced with the word *learning*, and in Question 22, the word *test* was replaced with the word *assessment*. The researcher orally read each question to the students, who responded on a numerical scale from 1 (*Not at all*) to 6 (*Very well*). This measure was scored by using the numerical response

of the student, with a minimum of 24 and a maximum of 144, were collected for analysis. Scores for each subscale were also collected for analysis, with a minimum score of 8 and a maximum score of 48.

Elementary Reading Attitude Survey.

The Elementary Reading Attitude Survey, developed by McKenna and Kear (1990), measures students' attitudes towards reading that for the purposes of this thesis is referred to as reading attitude. The survey contains 20 questions, with 10 questions assessing students' attitude towards recreational reading and 10 questions assessing students' attitude towards academic reading. High internal consistency was reported for this measure by McKenna and Kear (1990), with Cronbach's alphas ranging from .80 to .87 for the recreational subscale, .81 to .83 for the academic scale, and .88 and .89 for the full scale. In the study, the internal consistency tests yielded a Cronbach's alpha of .84 for the recreational subscale, .89 for the academic subscale, and .92 for the full scale. The survey has been normed for students in Grades 1 to 6 and is presented using a pictorial format containing Garfield characters, specifically developed for this measure by the creator of Garfield, Jim Davis (McKenna & Kear, 1990). Each question was read out loud to students, whom responded by selecting the Garfield character that most reflected their feelings. Each of the four Garfield characters was assigned a numerical value from 1 (*Very upset*) to 4 (*Happiest*) for the 20 responses. Items that contained references to *reading class* were changed to *reading group*, in order to suit the educational context of the students. Raw scores, with a minimum of 20 and a maximum of 80 points were collected for the full scale and a minimum of 10 and a maximum score of 40 for the recreational and academic subscales.

Literacy Measures-Control Data

A description of the literacy measures that were used to analyse the control data is provided below.

Supplementary Test of Achievement in Reading

Warwick Elley developed the Supplementary Test of Achievement in Reading (STAR), for the New Zealand Council of Educational Research (NZCER). The STAR measures students' reading skills. This standardised test is whole class administered, within the classroom context, and is suitable for children from Years 4 to 9 (9 to 14 years of age). The test comprises of six subtests. Four subtests are applicable to students in Year 4 to 6 that included word recognition, sentence comprehension, paragraph comprehension, and vocabulary range. A total of 20 minutes is allocated to complete the test at these year levels, with four minutes allocated for the word recognition, sentence comprehension, and vocabulary range subtests and eight minutes for the paragraph comprehension subtest (Elley, 2001). One point is allocated for each correct response and raw scores out of a possible 50 are converted into a 9-point stanine scale. The analyses used the stanine scores provided by the participating school.

Running Records

Running Records were developed by the late Dame Marie Clay and are a measure of a student's ability to read at text level. Running Records are designed to capture reading behaviours, thus, providing evidence of students' reading progress (Clay, 2000). Endorsed by the Ministry of Education, Running Records are administered individually to students and are frequently used in New Zealand schools to assess students' development of reading skills. However, the validity and reliability of Running Records has been critiqued within literature. According to Blaiklock (2004) Running Records rely on the premise that oral and silent

reading are underpinned by the same processes, which has been heavily debated within literature. This has led to erroneous interpretations of reading cues, which affects the decisions that teachers make about reading behaviours. He also argues that the reliability of the procedure, in terms of assessing reading accuracy, has not been established. This is because studies often diverge from Clay's guidelines for administration. Differences in procedural methods is acknowledged by the Ministry of Education (2016a) who note that procedures not only differ between schools, but also within schools. Overall, this suggests that caution should be given to the use of this measure, if used solely to determine reading ability. In the current research, the participating school utilised published assessment kits that included running record and comprehension components. The school utilised the raw scores from the accuracy and comprehension components to determine the reading level or reading age for each student. A mixture of reading ages and levels were provided to the researcher for analysis. Data containing reading levels were converted to reading ages for all students by the researcher.

Overall Teacher Judgement-Reading

The overall teacher judgement-reading (OTJ-R) rating was developed in order to determine the level of reading development or achievement of a student in accordance to National Standards that were introduced by the Ministry of Education in 2009. According to the Ministry of Education (2009) overall teacher judgements are evidence based and are determined by teachers using multiple sources of information that includes observation of assessment opportunities (teacher, self, and peer), standardised assessment tools, and learning conversations (interviews) with the student. However, Poskitt and Mitchell (2012) in their examination of overall teacher judgements, highlighted multiple issues that affect the validity of these judgements. These issues included: the arbitrary nature of standards that are contextually, socially, politically, and temporally situated; the tension that exists between the

tacit and explicit knowledge held by teachers that is variable but instrumental in overall teacher judgements; the use of exemplars or samples of student work that contain few criteria to underpin decision-making about standards than contain multiple criteria; and differences between analytic and holistic scoring. Thus, overall teacher judgements lack validity without shared understandings that are underpinned by explicit criteria and exemplars, as well as, moderation processes. The participating school reported OTJ-R using four categories that depicted the students' progress that included: well below, below, at, and above (National Standards). The participating school provided categorical data to the researcher, which was subsequently converted to a numerical scale for analysis that included: 1 (*Well Below*), 2 (*Below*), 3 (*At*), and 4 (*Above*).

General Procedure

A pre- post-intervention research framework was adopted for the study, which was conducted in the final school term of 2013. The researcher carried out pre-intervention assessment over a five-day period during the first two weeks of the school term. The measures that assessed literacy development (Burt, NARA, morphological awareness-judgement, and morphological production-morpho-syntactic) were administered individually. The psychosocial development questionnaire was administered to students in small group format (one to four students). Students did not receive feedback regarding test performance on any of the test items.

All assessments were carried out in the researcher's office, within the senior area of the participating school. In order to minimise student fatigue, three testing conditions were enacted. Firstly, literacy and psychosocial development was assessed in separate sessions. Secondly, measures were not administered to the same students in successive sessions. Finally, students received a short break following the completion of the third measure of the

psychosocial development questionnaire, due to the length of time required for administration. The Burt and NARA were administered according to their respective published procedures. A general procedure was developed for the administration of the morphology measures and the psychosocial questionnaire, thus ensuring consistency in administration for all students. All assessment was carried out during classroom hours.

The intervention consisted of 24 sessions. The sessions were carried out during literacy times of the participating school, with each session being approximately 30 minutes in length. Students attended a maximum of four sessions per week, over a six-week period. Students were primarily grouped according to class or year level in consultation with staff. Where possible, groups were consistent throughout the length of the intervention; however, fluidity in the composition of groups was allowed in order to best meet students' learning needs. Students attended an average of 20 sessions, with a range of 14-24 sessions. The collection of post-intervention data occurred over a six-day period. The format for post-intervention assessment gathering matched pre-intervention assessment; however, administration constraints and an additional student resulted in an additional day being required for post-intervention data gathering.

The collection of control data followed post-intervention assessment, with the researcher working in conjunction with the Deputy Principal. Control data were extracted from the student achievement database of the school. All students who participated in the control groups were allocated a participant number. Data were collected for two time points that included mid-year and end of year that matched pre- and post-intervention time points.

Reliability

Inter-rater reliability checks were not carried out for this study. This decision was made for two reasons. Firstly, the measures being used in the study were established

measures within educational and psychological research. Secondly, the scoring of the reading and psychosocial measures for the study was deemed to be clear and unambiguous, with scoring either requiring a correct or incorrect answer and a subsequent point allocation and summation, or involving scoring against specific criteria provided by published manuals or guidelines. A series of data checks were carried out. These included rechecking the marking of the Burt and morphology measures and the allocation of scores according to the predetermined marking criteria. The totals for each measure were also rechecked. For the NARA measure, the accuracy scores were rechecked for each text level, as well as, the scores given to comprehension questions. For the rate component of the NARA, the conversion of minutes to seconds was rechecked, along with the total scores used to determine students' rate of reading. For the psychosocial measures, student responses were checked against the scoring criteria, with particular attention given to reverse scoring and scale/subscale totals. In SPSS, descriptive statistics were performed for each measure that included checking minimum and maximum scores and mean scores, for missing or incorrect data. Any data entry errors were rechecked against the original data and were subsequently corrected. The researcher has retained the raw data in order to comply with university guidelines. Evidence for reliability was also demonstrated via the reliability checks that were performed for the measures contained within the study.

Intervention

Session Structure

The teaching and learning sessions followed the format developed by Marriott (2013) for Seven*Plus* that was underpinned by the decoding, vocabulary, and fluency components. The first component involved the development of decoding strategies; whereby, students practised decoding words selected from the focus text as possibly being unknown or difficult

for the students to read accurately. Students were taught the primary decoding strategy of syllabification, with an explicit focus on learning and applying the CVC syllable structure. Students were also encouraged to look for familiar chunks within words that could include morphological units, orthographic patterns, or rimes. The vocabulary component involved clarifying and teaching students the meaning of selected words identified from the targeted text, prior to the fluency component. The final fluency component was underpinned by a repeated reading format. This included using the researcher as the model of a fluent reader. Students also utilised reading cards, which were placed below the lines of text, in order to support the student during text reading. The session format is provided in Table 3. The sessions followed the format developed by Marriott (2013); however, each lesson varied as to the included components. For example, the session that included the decoding and vocabulary included less of the fluency component, while the subsequent lesson focused primarily on the fluency component, which was subsequently followed by the decoding component for a new text. The format of the sessions was viewed as cyclic in nature.

Intervention Text

StoryBytes texts, published by Sharp Reading, were used for the intervention. StoryBytes are an educational resource and have been formatted for use in guided reading lessons (Sharp Reading, 2013). Each narrative text is published in three levels of difficulty that includes: easy (Reading Age 7-8 years), medium (Reading Age 10-12 years), and hard (Reading Age 13-15 years). For the current study, easy and medium StoryBytes were selected. Easy-levelled StoryBytes were used to teach students the session format. Medium-levelled StoryBytes were used for the remainder of the study. The stories utilised within the study were selected due to their short composition and because they were deemed to have high-interest subject matter or content for students, for example; Batman, yetis, pirates, and spies. It was deemed that high-interest content that would assist students in engaging within

the learning process.

Table 3. *Session Structure for Intervention (Study 1)*

Key Component	Structure
Decoding	Words selected from focus text that are potentially unknown by students Students and teacher discuss and apply decoding strategies that include: Syllabification (CVC), Blending, Chunking (morphology, orthography, rime)
Vocabulary	Discussion of meanings of selected words from decoding component.
Fluency	Repeated Reading Researcher reads a section of the text to students. All students follow the text using their text cards. Researcher and students re-read section of the text as a group. Students take turns to individually re-read sentences or sections of the text out loud. Remaining students read silently, using their text cards to follow. Discussion Comprehensions questions - focusing on the students' understanding of the text.

Results

The introduction to this study outlined three research questions. To answer these questions, the following analyses were conducted using SPSS (Version 20.0 and Version 22.0):

1. Descriptive statistics were examined to ascertain the level of literacy and psychosocial development presented at pre- and post-intervention assessment for the intervention group of students.

2. Paired samples *t*-tests were carried out and examined to determine the difference between the mean pre- and post-intervention scores of students for the measures of literacy and psychosocial development.

3. Correlations were calculated to determine the relationship between the measures of literacy development and psychosocial development, included in the assessment battery.

4. Partial correlations were calculated to determine the influence of year level and gender, respectively, on the relationship between the measures of literacy development and psychosocial development.

5. Correlations and mixed between-within analysis of variance were performed to determine if differences existed within and between the performance of intervention and control groups, on school-based assessments, over the period of the intervention.

Descriptive statistics for the intervention group are presented in Table 4.

Table 4. *Pre- and Post-Intervention Scores for the Intervention Group (n = 21) for all Measures Included in the Assessment Battery (Study 1)*

	Pre-test			Post-test		
Test (maximum obtainable score)	*M*	*SD*	Range	*M*	*SD*	Range
Literacy Development						
Burt (110)	44.05	14.94	26 - 88	52.19	17.02	31 - 94
NARA-Accuracy (100)	33.67	17.50	8 - 75	39.43	14.90	16 - 79
NARA-Comprehension (44)	10.57	4.39	4 - 20	18.33	5.54	10 - 31
NARA-Rate of Reading (Words read/Total time x 60)	39.33	18.02	17 - 101	39.29	18.50	14 - 99
Morphological Awareness-Judgement (20)	13.05	2.52	9 - 17	14.38	2.64	8 -18
Morphological Production-Morpho-Syntactic (20)	16.71	1.98	12 - 20	16.90	2.70	12 -20
Psychosocial Development						
Rosenberg Self-Esteem Scale (40)	26.86	4.57	19 - 35	28.10	3.33	22 - 34
Academic Self-Esteem (24)	14.95	3.89	6 - 24	17.24	3.99	10 - 24
Resilience (70)	43.52	7.80	31 - 61	44.71	10.63	29 - 65
General Self-Efficacy-Academic (48)	30.62	7.15	12 - 44	31.29	8.80	12 - 45
General Self-Efficacy-Social (48)	29.95	8.00	9 - 42	33.38	8.45	15 - 46
General Self-Efficacy-Emotional (48)	27.62	7.04	13 - 43	32.67	5.57	21 – 41
General Self-Efficacy-Total (144)	88.19	18.03	45 - 117	97.33	18.22	60 - 131
Reading Attitude-Recreational (40)	25.24	5.78	11 - 34	26.48	5.05	17 - 38
Reading Attitude-Academic (40)	26.29	7.16	10 - 37	26.67	5.83	14 - 39
Reading Attitude-Total (80	51.90	12.93	21 - 74	53.14	9.54	31 - 73

For the two measures that assessed reading accuracy, analysis indicated that students demonstrated higher levels of proficiency on the Burt that measured single word reading accuracy. At pre-intervention the mean score for the Burt was 44.05, while the mean score was 33.67 for NARA-accuracy. At post-intervention, the greatest gains were demonstrated for the Burt, with a mean gain of 8.85 in comparison to a mean gain of 5.76 for NARA-accuracy. The greatest variation in scores was found for NARA-accuracy, with a range of scores from 8 to 75 at pre-intervention; however, decreases in the standard deviation (*SD* = 14.90) and range (16-79) were evident at post-intervention, with the greatest gains being made in the lower end of the range.

For NARA-comprehension, pre-intervention test scores indicated that students were able to answer an average of 11 of comprehension questions correctly. The range indicated high variability in scores, with students answering between 4 and 20 questions correctly. A large gain was identified following post-intervention testing with students answering an average of 18 comprehension questions correctly. The greater gains were demonstrated in the upper range, with an increase in the maximum score from 20 to 31 between testing periods. Pre- and post-intervention scores for NARA-rate indicated wide variability in words read per minute. At pre-intervention, students' scores ranged from a minimum of 17 words to a maximum of 101 words per minute. This variability was maintained at post-intervention testing, with a decrease being identified in both the scores in the range (minimum = 14, maximum = 99).

Analysis indicated that for the two tests that targeted morphological awareness students demonstrated stronger skills in the morpho-syntactic measure. A mean score of 16.71 was found for the morpho-syntactic measure at pre-intervention, in comparison to a mean score of 13.05 for the judgement measure. However, the greatest gains were demonstrated for the judgement task, with an increase in the mean score of 1.33, in

comparison to the mean increase of .19 for the morpho-syntactic task. The maximum score of 20 (out of a possible 20) indicated a ceiling effect had been reached at pre- and post-intervention.

For the measures of self-esteem, floor and ceiling effects, with a minimum score of 6 and a maximum score of 24, were identified for the pre-intervention scores on the academic self-esteem measure. A ceiling effect was found for the post-intervention scores for academic self-esteem; however, the floor effect was not evident at post-intervention due to an increase in the minimum score to 10. For the resilience measure, analysis identified a mean score of 43.52, out of a possible 70. The variability in scores for the resilience measure was greater at post-intervention than pre-intervention, with an increase in the range of scores that was attributed to a decrease in the minimum scores between testing periods from 31 to 29, as well as, and an increase in the maximum score from 61 to 65.

The lowest pre-intervention mean in the general self-efficacy measure was found for emotional self-efficacy (M = 27.62). The subscale also demonstrated the lowest standard deviation (SD = 7.04), which decreased post-intervention (SD = 5.57). In contrast, academic and social self-efficacy both demonstrated increases to the standard deviation at post-intervention. The raw scores for the three subtests were combined to provide a full-scale score for general self-efficacy. The mean score for the full scale of 88.19 at pre-intervention increased to 97.33 at post-intervention. The range of scores at pre-intervention (45 to 117) and post-intervention (60 to 131) indicated that a ceiling effect was not reached for this measure.

Of the two subscales that comprised the reading attitude measure, academic reading demonstrated the highest mean score (M = 26.29) at pre-intervention. A floor effect was identified for the academic subscale at pre-intervention. The maximum scores in the post-

intervention testing (38 for recreational reading; 39 for academic reading) indicated that a ceiling effect was being approached for both subscales, but that a range of scores was achievable within the limits of the measure. The raw scores for both subscales were combined to provide a full-scale score. The greatest gains for the full scale were identified at the lower end of the range, with an increase in the minimum score from 21 to 31 between testing periods.

One aim of the study was to determine if the literacy development of students with LLD improved over the period of the targeted intervention. To address this question, paired sample *t*-tests were conducted to determine if differences existed between the performances of students at pre- and post-intervention testing. Eta squared statistics were performed to determine the effect size for the paired *t*-tests that followed guidelines set by Cohen (1988), which included: small (.01), moderate (.06), and large (.14). The *t*-test for the Burt was significant, t (20) = -5.770, $p < .001$, $\eta^2 = .62$ indicating that students performed significantly better on the single word reading accuracy task at post-intervention. Significant gains were also identified for NARA-accuracy, t (20) = -4.464, $p < .001$, $\eta^2 = .50$. No significant gains were identified for NARA-rate, t (20) = .033, $p < .974$, $\eta^2 = .005$. Concerns regarding the normality of distribution for the NARA-accuracy and rate components resulted in additional non-parametric *t*-tests being performed. The Wilcoxon Signed Rank Test found significant gains for NARA-Accuracy, Z (20) = -3.199, $p < .002$, but not for the NARA-rate component, Z (20) = -.469, $p < .64$.

For NARA-comprehension, analysis indicated that students performed significantly better at post-intervention, t (20) = -12.066, $p < .001$, $\eta^2 = .88$. Additional analysis was carried out to determine if student performance on the comprehension component differed at text level. These results, presented in Table 5, indicated that students performed significantly

better at post-intervention on the comprehension component for Levels 1 to 4 of the NARA text. Analysis was not carried out for Levels 5 and 6 of the NARA due to small sample sizes. Students performed significantly better at post-intervention on the morphological awareness-judgement task, t (21) = -2.197, $p < .05$, $\eta^2 = .19$; however, no significant differences were identified for the morphological production-morpho-syntactic task, t (20) = -.400, $p < .070$, $\eta^2 = .008$.

Table 5. *Results of the Paired t-tests for NARA-Comprehension (Study 1)*

NARA Text Level	*n*	*t*	*p*	*d*
1	20	-4.483	.001*	.50
2	20	-8.000	.001*	.76
3	15	-3.641	.002*	.47
4	9	-4.116	.003*	.68
5	3			
6	1			

*$p < .01$

The second aim of the analysis included determining whether a targeted intervention, which included instruction in general literacy skills, promoted the psychosocial development of students with LLD. The first step in answering this question was to determine whether differences existed in the psychosocial development of the intervention group, between pre- and post-intervention. To address this aim, paired sample *t*-tests were carried out for the psychosocial measures. The first analysis was carried out using all students in the intervention group. A second analysis was performed, following investigation of the descriptive statistics, removing two students identified as probable outliers from the analysis, a pair of siblings experiencing a disruptive home environment. Results are presented in Table

6.

Students demonstrated significant gains in academic self-esteem at post-intervention, full sample, t (20) = -3.114, p = .005, η^2 = .33 and reduced sample, t (18) = -4.196, p = .001, η^2 = .49. Significant differences were identified for general self-efficacy, full sample, t (20) = -2.814, p = .011, η^2 = .28; reduced sample, t (18) = -2.790, p = .012, η^2 = .30, and the emotional subscale, full sample, t (20) = -3.821, p = .001, η^2 = .42; reduced sample, t (18) = -3.325, p = .004, η^2 = .38. No significant differences were found in the full sample analysis for global self-esteem measure, t (20) = -1.777, p = .091, η^2 = .14 and social self-efficacy, t (20) = -2.050, p = .054, η^2 = .30. However, using the reduced sample, significant differences were identified for global self-esteem, t (18) = -2.790, p = .012, η^2 = .30, and social self-efficacy, t (18) = -2.637, p = .017, η^2 = .29. No significant differences were identified for resilience, academic self-efficacy, or reading attitude and its recreational and academic subscale.

Although the evidence suggested that statistically significant change did not occur for the majority of psychosocial development measures, the following section will focus on the main research question of whether change in literacy levels, produced by the intervention, is associated with change in self-reported psychosocial development. In order to determine if associations existed between literacy and psychosocial development, analysis was carried out using Pearson product-moment correlations. These are presented in Table 7. Scatterplots were used as a visual aid to ensure that there were no non-linear relationships within the data. No statistically significant findings were identified for the variables measured. The relationship between morphological awareness-judgement and global self-esteem approached significance (r = .419, n = 21, p = .059). However, sample size is an important factor influencing statistical significance and for sample sizes less than 30, a moderate correlation

may be present, even in the absence of statistical significance (Pallant, 2013). As such, results were reviewed using guidelines for determining effect sizes for correlations that included: small (r = .10 to .29), medium (r = .30 to .49), and large (r = .50 to 1.0) (Cohen, 1988).

Table 6. *Results of Paired Sample t-tests for Psychosocial Measures (Study 1)*

	Analysis 1 (n = 21)		Analysis 2 (n = 19)	
Psychosocial Measure	*t*	*p*	*t*	*p*
Global Self-Esteem	-1.777	.091	-2.790	.012*
Academic Self-Esteem	-3.114	.005**	-4.196	.001**
Resilience	-.534	.599	-.944	.358
General Self-Efficacy	-2.814	.011*	-2.790	.012*
Academic Self-Efficacy	-.485	.633	-.642	.529
Social Self-Efficacy	-2.050	.054	-2.637	.017*
Emotional Self-Efficacy	-3.821	.001**	-3.325	.004**
Reading Attitude	-.666	.514	-1.198	.247
Recreational Reading	-1.404	.176	-1.256	.225
Academic Reading	-.294	.772	-1.261	.223

*p < .05, **p < .01.

Seven correlations of medium strength were identified between measures of literacy and psychosocial development; as well as, numerous small correlations. NARA-comprehension was positively correlated with all facets of general self-efficacy that included a medium correlation with academic self-efficacy, r = .311, n = 21, p = .170, and small correlations with general self-efficacy, r = .273, n = 21, p = .231, social self-efficacy, r =

.153, $n = 21$, $p = .508$, and emotional self-efficacy, $r = .155$, $n = 21$, $p = .503$. A medium positive correlation was found for NARA-comprehension and reading attitude, $r = .335$, $n = 21$, $p = .138$. NARA-rate was moderately but negatively correlated with reading attitude, $r = -.303$, $n = 21$, $p = .182$. The morphological awareness-judgement task was positively correlated with global self-esteem, $r = .419$, $n = 21$, $p = .059$, and academic self-esteem, $r = .380$, $n = 21$, $p = .090$. However, this measure was negatively correlated with resilience, $r = -.245$, $n = 21$, $p = .284$; as well as, general self-efficacy, $r = -.349$, $n = 21$, $p = .121$ and its academic, $r = -.319$, $n = 21$, $p = .159$; social, $r = -.232$, $n = 21$, $p = .311$, and emotional subscales, $r = -.233$, $n = 21$, $p = .310$.

In order to determine the amount of variance shared by the aforementioned variables, coefficients of determination were calculated (r^2), which were converted into a percentage of variance. Calculations indicated that NARA-comprehension explained 10 % of the variance found in academic self-efficacy, 7 % of the full self-efficacy scale, and 11 % of the variance for the reading attitude measure. NARA-rate explained 9 % of the variance found in the full reading attitude measure. Morphological awareness-judgement explained 18 % of the variance for global self-esteem, 14 % of the variance for academic self-esteem, 12 % of variance for general self-efficacy, and 10 % of variance for academic self-efficacy.

Partial correlations were then conducted to explore the relationship between the measures of literacy and psychosocial development, while controlling for the influence of year level and gender, respectively. The partial correlations are presented in Table 8 (gender) and Table 9 (year level). Comparisons with the zero order correlation indicated that the association between NARA-comprehension and academic self-efficacy decreased when year level was controlled for, $r = .174$, $n = 21$, $p = .463$. Calculations of percentages of variance indicated that NARA-comprehension accounted for only 3 % of the variance in responses, in contrast to the 10 % of variance that was calculated using zero order correlations. The

negative correlation between NARA-rate and global self-esteem increased when year level was controlled for, r = -.330, n = 21, p = .155, which accounted for an additional 4 % (to total 11 %) of variance in students' responses. Results also indicated that year level was an influential factor in the relationships between morphological awareness-judgement and global self-esteem; as well as, general self-efficacy. The positive correlation between the judgement task and global self-esteem increased in strength from r = .419 to r = .504. Calculations of percentages of variance indicated that the judgement task helps to explain an additional 7 % of variance, to total 25 % of the variance for global self-esteem. The negative correlation between morphological awareness-judgement and general self-efficacy increased from r = -.349 to r = -.393, which accounted for an additional 3 % of variance in students' responses on the general self-efficacy measure.

Comparisons with the zero order correlations indicated that controlling for gender had an affect on the association between NARA-comprehension and several psychosocial measures. The correlation between NARA-comprehension and academic self-efficacy decreased from r = .311 to r = .288. Comprehension accounted for 8 % of variance in students' responses on the academic self-efficacy measure (decrease of 2 % of variance). The association between NARA-comprehension and recreational reading attitude decreased from r = .311 to r = .288, with a decrease in shared variance from 10 % to 8 %. The small negative correlation initially found between NARA-comprehension and resilience increased from r = -.105 to r = -.278. This stronger negative association accounted an additional 6 % of variance. The association between NARA-comprehension and recreational reading attitude increased from r = .196 to r = .431, accounting for nearly 15 % of additional variance, which indicated that gender had some affect on the association between these two variables. The positive association between NARA-comprehension and reading attitude increased from r = .335 to r = .536, which accounted for an additional 17 % of variance, again indicating that gender had

an affect on the association between comprehension and reading attitude.

Table 7. *Pearson Product-Moment Correlations Between Literacy and Psychosocial Development Measures (Study 1)*

	GSE	ASE	RES	GSEff	GSEff-Aca	GSEff-Soc	GSEff-Emo	RA	RA-Rec	RA-Aca
Burt	-.003	-.011	-.052	-.137	-.076	.021	-.285	.169	-.003	.203
NARA-Acc	.104	-.084	-.114	.009	.017	-.217	.281	-.015	.245	.122
NARA-Comp	.134	-.119	-.105	.273	**.311**	.153	.155	**.335**	.196	-.100
NARA-Rate	-.264	.177	.155	.168	.278	-.060	.200	**-.303**	-.254	-.243
MA	**.419**	**.380**	-.245	**-.349**	**-.319**	-.232	-.233	.191	.231	-.087
MP	-.021	-.137	-.053	.018	.063	.076	-.118	.043	.092	-.079

Note. Cohen's (1988) guidelines include large correlations (r = .5 to 1.0), medium correlations (r = .30 to .49), and small correlations (r = .10 to .29). Burt = Burt Reading Test; NARA-Acc = NARA-Accuracy; NARA-Comp = NARA-Comprehension; NARA-Rate = NARA-Rate of Reading; MA = Morphological Awareness-Judgement; MP = Morphological Production-Morpho-Syntactic; GSE = Global Self-Esteem; ASE = Academic Self-Esteem; RES = Resilience; GSEff = General Self-Efficacy; GSEff-Aca = General Self-Efficacy- Academic; GSEff-Soc = General Self-Efficacy-Social; GSEff-Emo = General Self-Efficacy-Emotional; RA = Reading Attitude; RA-Rec; Reading Attitude-Recreational; RA-Aca = Reading Attitude-Academic.

* Boldface indicates medium correlations

Table 8. *Partial Correlations Between Literacy and Psychosocial Measures Controlling for Gender (Study 1)*

	GSE	ASE	RES	GSEff	GSEff-Aca	GSEff-Soc	GSEff-Emo	RA	RA-Rec	RA-Aca
Burt	-.022	-.014	-.019	-.103	-.058	.032	-.246	.115	-.098	.180
NARA-Acc	.105	-.084	-.128	.009	.016	-.218	**.306**	-.016	.287	.124
NARA-Comp	.194	-.119	-.278	.213	.288	.140	.037	**.536**	**.431**	-.050
NARA-Rate	-.246	.181	.101	.137	.265	-.070	.156	-.269	-.209	-.223
MA	**.392**	**.405**	-.090	-.282	-.296	-.225	-.091	.033	.039	-.170
MP	-.057	-.144	.045	.075	.093	.092	-.037	-.052	-.020	-.120

Note. Cohen's (1988) guidelines include large correlations (r = .5 to 1.0), medium correlations (r = .30 to .49), and small correlations (r = .10 to .29). Burt = Burt Reading Test; NARA-Acc = NARA-Accuracy; NARA-Comp = NARA-Comprehension; NARA-Rate = NARA-Rate of Reading; MA = Morphological Awareness-Judgement; MP = Morphological Production-Morpho-Syntactic; GSE = Global Self-Esteem; ASE = Academic Self-Esteem; RES = Resilience; GSEff = General Self-Efficacy; GSEff-Aca = General Self-Efficacy- Academic; GSEff-Soc = General Self-Efficacy-Social; GSEff-Emo = General Self-Efficacy-Emotional; RA = Reading Attitude; RA-Rec; Reading Attitude-Recreational; RA-Aca = Reading Attitude-Academic.

* Boldface indicates medium and large correlations

Table 9. *Partial Correlations Between Literacy and Psychosocial Measures Controlling for Year Level (Study 1)*

	GSE	ASE	RES	GSEff	GSEff-Aca	GSEff-Soc	GSEff-Emo	RA	RA-Rec	RA-Aca
Burt	.079	.008	-.067	-.091	-.022	.063	-.263	.195	.027	.193
NARA-Acc	.062	-.101	-.104	-.045	-.034	-.264	.265	-.033	.229	.133
NARA-Comp	-.068	-.188	-.068	.121	.174	.043	.049	.295	.123	-.068
NARA-Rate	**-.330**	.174	.159	.176	**.300**	-.074	.201	**-.314**	-.269	-.241
MA	**.504**	**.387**	-.249	**-.393**	**-.353**	-.240	-.240	.197	.242	-.089
MP	-.203	-.189	-.022	-.140	-.078	-.014	-.223	.006	.029	-.053

Note. Cohen's (1988) guidelines include large correlations (r = .5 to 1.0), medium correlations (r = .30 - .49), and small correlations (r = .10 to .29).
Burt = Burt Reading Test; NARA-Acc = NARA-Accuracy; NARA-Comp = NARA-Comprehension; NARA-Rate = NARA-Rate of Reading; MA = Morphological Awareness-Judgement; MP = Morphological Production-Morpho-Syntactic; GSE = Global Self-Esteem; ASE = Academic Self-Esteem; RES = Resilience; GSEff = General Self-Efficacy; GSEff-Aca = General Self-Efficacy- Academic; GSEff-Soc = General Self-Efficacy-Social; GSEff-Emo = General Self-Efficacy-Emotional; RA = Reading Attitude; RA-Rec; Reading Attitude-Recreational; RA-Aca = Reading Attitude-Academic.

* Boldface indicates medium and large correlations

Control data were analysed by categorising the Year 4 to 6 students, from the participating school, into three groups that included: the intervention group (Intervention Group, n = 21), the alternate school-led intervention group (Control Group 1, n = 10), and the remainder of Year 4 to 6 students (Control Group 2, n = 91). Descriptive statistics are provided in Table 10. The control data included three sets of measures collected by the school as part of their annual routine assessment procedure. This included the STAR measure and Running Records; as well as, an overall teacher judgement-reading (OTJ-R). In order to ensure the reliability of the measures included in the analysis, the relationships between the three measures were investigated using Pearson product-moment correlation coefficients. Results indicated statistically significant associations between all three measures that included OTJ-R and Running Records, r = .755, n = 116, p < .001, as well as, OTJ-R and STAR, r = .739, n = 107, p < .001. Thus, it was considered that OTJ-R was as reliable as the scores for the standardised STAR test and the Running Record scores and should be included in subsequent analyses.

Analysis of the control measures indicated that the Intervention Group demonstrated the lowest mean scores for all three measures (Running Records, M = 8.72; STAR, M = 2.06; OTJ-R, M = 2.33). For Running Records, analysis indicated that at pre-intervention, Control Group 2 demonstrated the highest level of proficiency with a mean score of 11.24. However, the greatest gains were made by the Intervention Group, with a mean increase of .83 at post-intervention, followed by Control Group 2 with a mean gain of .78. Control Group 1 demonstrated the lowest mean gain, of .39. For the STAR measure, analysis indicated that Control Group 2 showed the largest mean score (M = 6.11) at pre-intervention; however, at post-intervention the mean score of this group had decreased (M = 5.80). The greatest gain on the STAR measure was found for Control Group 1 who demonstrated a mean increase of .78. The Intervention Group demonstrated a mean gain of .23 at post-intervention. For the OTJ-R

measure, analysis indicated no difference between pre- and post-intervention scores for Control Group 1. For the remaining two groups, slight decreases in mean scores were again identified, with a mean decrease of .10 for Control Group 2 and a mean decrease of .05 for the Intervention Group.

Table 10. *Descriptive Statistics for Analysis of Control Data (Study 1)*

	Pre-intervention			Post-intervention		
	N	*M*	*SD*	*N*	*M*	*SD*
Running Record						
Intervention Group	19	8.72	1.69	19	9.55	1.91
Control Group 1	9	10.42	2.03	9	10.81	1.85
Control Group 2	88	11.24	1.83	88	12.02	1.62
STAR						
Intervention Group	17	2.06	1.44	17	2.29	1.31
Control Group 1	8	4.25	2.77	8	5.00	2.67
Control Group 2	79	6.11	2.20	79	5.80	1.84
OTJ-R						
Intervention Group	18	2.33	1.03	18	2.28	.96
Control Group 1	9	3.00	1.12	9	3.00	1.00
Control Group 2	88	3.60	.69	88	3.50	.74

Mixed between-within subjects analysis of variance were conducted for the Running Record and STAR measures of the control data to determine if the mean scores for the groups differed across the two testing points (pre- and post-intervention); as well as, determining

whether differences existed between the performance of the groups over the testing points. Analysis was not performed for the OTJ-R measure due to the static scores and small decreases demonstrated for this measure. The mixed between-within ANOVA for the Running Records data indicated that there was a significant effect for time, F (1, 113) = 32.38, $p < .001$, η_{ρ}^{2}, = .22. No significant interaction was identified between group and time, F (2,113) = .954, p = .388, η_{ρ}^{2}, = .017. The mixed between-within ANOVA for the STAR test did not identify a significant effect for time, F (1, 101) = 1.423, p = .236, η_{ρ}^{2}, = .014. An interaction effect was identified for time and group, F (2, 101) = 3.496, p = .034, η_{ρ}^{2}, = .065. Post-hoc analysis using Tukey HSD did not identify any differences between the mean difference scores between the three groups.

Discussion

This study was concerned with the psychosocial and literacy development of primary aged students, from Year 4 to 6, with literacy learning difficulties (LLD). There were two purposes underpinning the study. The main focus was to examine whether the psychosocial development of students with LLD was associated with change in literacy scores, produced via a targeted literacy intervention containing instruction in general skills. This aspect of the study was developed in direct response to the finding by Elbaum and Vaughn (1999), whom in a meta-analysis of the effectiveness of school-based interventions for academic self-esteem of students with LLD found that for elementary aged school students the greatest contributor to increases in academic self-esteem were interventions that targeted the development of academic skills. The other purpose was to examine whether the literacy development of students with LLD could be positively affected via the implementation of the targeted literacy intervention. This part of the study was developed in response to the current educational context for older students with LLD in New Zealand.

The data supported the notion that the students in the current study were experiencing literacy learning difficulties. Mean scores on the control data indicated that on the standardised STAR measure, students performed on average at Stanine 2, which placed the students within the 5th percentile for reading achievement. This finding aligned with the OTJ-R data that indicated teachers rated students as working below the expected national average. Pre-intervention scores on the NARA measure indicated that, on average, students were performing around 7.4 to 7.9 years of age. On the Burt measure, data indicated that at pre-intervention students were performing, on average, around 8 years of age. Wide variability was evident within the ranges of these scores. Comparison of this intervention data and school-based data, suggest that students were performing behind their peers in their literacy learning.

Results indicated psychosocial development was positively affected, following the targeted literacy intervention; however, variability existed in the psychosocial variables that were affected. Analysis identified that students made significant gains in academic self-esteem, as well as, in general self-efficacy and its emotional subscale. Significant gains were also identified for global self-esteem for the reduced sample of students. No significant gains were found for students in the academic and social self-efficacy subscales or the resilience and reading attitude measures. Measures of literacy were also differentially affected. Significant gains were identified for both measures of reading accuracy as well as morphological awareness-judgement and reading comprehension. However, no differences were found for the NARA-rate or morphological production measures. Moderate and small correlations were identified between measures of literacy development and psychosocial development. These included a positive association between reading comprehension and academic self-efficacy that decreased when gender was controlled for, as well as, a moderate positive association between reading comprehension and reading attitude. Morphological

awareness-judgement was positively associated with global and academic self-esteem. The association between morphological awareness-judgement and global self-esteem increased when year level was controlled for. Results also identified negative associations between measures of literacy and psychosocial development that included NARA-rate and reading attitude, as well as, reading comprehension and resilience. Multiple negative associations were identified between morphological awareness and psychosocial measures that included resilience, general self-efficacy, and academic self-efficacy. The negative association between reading comprehension and resilience increased when year level was controlled for.

Analyses of the school-based assessment, which comprised the control data for the current study, indicated that the Intervention Group made positive gains, between the testing periods, on the Running Record and STAR measures. However, these gains did not significantly differ from the gains made by the other two control groups. A slight decrease in mean scores was identified for the Intervention Group on the OTJ-R measure. Overall, while the Intervention Group experienced some positive changes in their mean scores, these were not significantly different from the other two groups whom did not receive the targeted intervention aimed at increasing literacy development.

Overall, the results of this study suggest that a targeted literacy intervention may be an effective intervention for developing some literacy skills in students with LLD. Importantly, these results suggest that a targeted intervention may be effective in targeting the psychosocial development of students with LLD. This finding supports the findings of Elbaum and Vaughn (1999). These results are discussed further below.

Psychosocial Development

Students reported significantly higher scores on the academic self-esteem measure at post-intervention. This suggests that the evaluations that students were making about

themselves had altered over the course of the intervention. Given that social comparisons have been found to contribute to the evaluations that students make in regard to their ability (Humphrey, 2004), it can be suggested that, in this study, peers may be an influential factor that contributed to changes in the evaluations that students were making about themselves. It could be suggested that the composition of the students within the sample, which formed the frame of reference, fostered positive comparisons to be made between students. Furthermore, even if students did not actively compare themselves against their peers, it has been found that awareness of peers' ability levels was influential in students' evaluations (Casserly, 2013). Thus, being grouped with similar ability children may have contributed to the development of academic self-esteem in the current sample of students.

Significant improvements in students' levels of general self-efficacy were identified. This finding suggests that the judgements students were making regarding their ability to perform specific and concrete tasks in the future, had altered over the course of the intervention. The positive gains in general self-efficacy were also accompanied by the positive gains in the emotional subscale. Researchers have suggested that overall self-efficacy is influenced by the emotional or affective state of an individual (Bandura, 1997). Thus, the positive gains in the emotional subscale suggest that students' levels of anxiety and stress altered over the period of the intervention. However, the gains in general self-efficacy did not extend to the academic subscale. This suggests that the confidence levels of the students, reflected by the judgements of their ability to complete concrete academic tasks in the future had not improved, even though students appeared to be evaluating their experiences more positively that had been reflected in the significant gains in academic self-esteem. This may relate to the students' level of confidence in applying newly developed skills to complete tasks successfully. This may suggest that the intervention did not foster levels of confidence in students to the degree that would increase the likelihood of future

success.

Literacy Development

The students in the intervention group significantly improved on the Burt and NARA-accuracy that measured reading accuracy. It is likely that instruction within the decoding component, which included instruction in syllabification and morphemes, assisted students in being able to decode unknown words that were both morphologically simple and complex in structure. While this study did not include a phonological awareness measure that would assess growth in syllabic knowledge, results identified a significant increase in the morphological awareness-judgement measure between testing periods. The role of morphological awareness, as an influential factor in word reading achievement, is recognised within research literature. This includes findings that morphological awareness skills contributes unique variance to the development of word level skills in students (Apel et al., 2012) and that recognising base words in phonologically complex words is an influential variable that predicts word reading achievement (Fowler & Liberman, 1995). One way in which morphological awareness skills may have influenced word reading accuracy is via the development of skills that provided students with the opportunity to analyse words according to bigger chunks, which may have included morphological units. According to Wolter and Dilworth (2014) decoding in morphological units removes some of the ambiguity that occurs when phoneme-grapheme correspondences are flouted. This may be of particular importance to students with LLD because this group often has ineffective or limited word-level decoding skills.

In the study, students' rate of reading was not significantly different at post-intervention testing, despite the fact that the intervention involved a fluency component underpinned by an impress model and a repeated reading format. Researchers, such as Apel

et al. (2013) have suggested that increases in reading speed can be facilitated by word-level processes that include decoding at the level of morpheme; however, in the current study, students' rate of reading slightly decreased between testing periods. It could be suggested that decoding strategies and text complexity may have contributed to decreases in reading rate. If students applied newly learned strategies to decode unknown words then it could take longer to read the text. As the complexity of the texts increased, students may also have automatically recognised fewer components of words, which may have resulted in reverting to using compensatory strategies such as the context (via the strategies of re-reading or reading on) to facilitate decoding, which may have also affected students' rate of reading. Finally, the emphasis on syllabification, as the primary means of decoding, may have influenced reading rate. This is because syllables operate on the phonological level, however, important correspondences between spoken and written language occur at the morphemic level, which can flout grapheme-phoneme correspondences (Nagy, Carlisle, & Goodwin, 2014). This aspect may be significant in this study due to how students were taught to syllabify and will be discussed further, in the limitations section of the study.

The study identified significant increases in students' level of reading comprehension. This was of interest, primarily because explicitly developing reading comprehension via recognised specific comprehension strategies (for example, summarising, predicting, or main ideas) was not a primary component of the intervention. The aim of comprehension questions and any discussion, within the intervention, was to encourage students to focus at the word-level, in order to reinforce the development of word-level skills and vocabulary. Limited questions were posed at the end of each paragraph of the text. It could be argued that increases in students' reading accuracy contributed to increases in reading comprehension. Within the administration guidelines of the NARA measure, students are posed comprehension questions, unless they reach the error cut-off score of 16 (20 for Level 6).

Higher levels of reading accuracy meant that students were less likely to reach the error cut-off score for the text level and would be posed the comprehension questions. Analysis of the pre- and post-intervention mean scores of the text levels within the NARA indicated that students made significant gains, with large effect sizes for Levels 1 to 4 that ranged from .47 to .76. This indicates that gains in comprehension were being made within levels and were not the result of students reading additional texts. The increases in reading comprehension found in the study align with findings within research literature (Anglin, 1993; Wolter & Dilworth, 2014). Wolter and Dilworth (2014) suggested that a focus on meaning at word level facilitates the ability of students' to access meaning within text. Students may also have been able to apply some morphological understandings by decomposing words into their base words and affixes, which according to Anglin (1993) can contribute to facilitating comprehension at text level.

While significant increases in the morphological awareness-judgement activity can be viewed as contributing to increases in word accuracy and reading comprehension in the study; growth in morphological production was not significant for students. One reason for this may lie with the form of assessment itself. Debate exists within the literature as to how the requirements of the task can influence outcomes (Apel et al., 2013). In the current study, task requirements for the morphological production measure included students transforming base words; however, the transformed word had to fit the syntactic context of the sentence. Thus, it could be suggested that syntax was a factor mediating the ability of students to transform base words. Student understanding of vocabulary that included base words may have also influenced student responses. This is because vocabulary knowledge is an influential factor in tasks that require morphological transformation (Berninger, Abbott, Nagy, & Carlisle, 2010).

Psychosocial Development and Literacy Development

Results indicate that while associations were identified between literacy and psychosocial measures, these were variable and included both positive and negative associations. These findings tend to contrast the findings within literature that emphasise the association between self-esteem, specifically academic self-esteem and academic achievement (Byrne, 1984; Chapman, 1988; Guay et al., 2010; Hettinger, 1982; Tunmer & Chapman, 2003). Positive associations were identified between NARA-comprehension and academic self-efficacy and reading attitude. It may be that success for students in answering comprehension questions may have positively influenced students' judgements of their confidence to complete similar tasks in the future. Students may also have developed more positive attitudes towards reading experiences, if they judged themselves as having the capacity to answer comprehension questions correctly, which are key components of reading instruction and assessment at the participating school. The findings of a negative association between NARA-rate and reading attitude may be related to the aspects discussed previously, regarding the role in word reading accuracy in text reading. The positive associations between morphological awareness-judgement and global self-esteem and academic self-esteem increased when year level was controlled for. Understanding this finding requires further analysis to be carried out (this will be discussed in Chapter 6). This is because, as mentioned, while it is agreed in literature that self-esteem is a multi-dimensional construct, contention exists as to when self-esteem differentiates in children. Self-esteem has been argued to be less differentiated in younger children. It could be suggested that the strength of the association is mediated by year level, which is influenced by whether students are primarily operating at a global level and the level of differentiation within the academic domain. Morphological awareness has also been found to emerge along a developmental trajectory. According to Berninger et al. (2010) morphological awareness begins to develop

in elementary school, continuing to develop over a longer trajectory than other literacy skills.

The finding that morphological awareness-judgement is negatively associated with resilience, general self-efficacy, and its academic subscale suggest that even though significant increases in the morphological awareness-judgements measure were identified, students did not have the confidence to apply these newly developed skills in the future. This is supported by the negative association between morphological awareness-judgement and resilience measures that suggests that increases in this literacy skill did not act to buffer the affect of literacy learning difficulties on students with LLD, in this study.

Limitations and Considerations

Limitations of the Administration of Measures

Morphological Awareness-Judgement Measure.

The administration of the morphological awareness-judgement measure involved students' independently reading pairs of words and then making a judgement as to whether the two words were related. Although this procedure was developed to ensure consistency in the administration of the measure for all students, it was observed that some students experienced difficulty in reading one or both of the words contained in some items, which resulted in the researcher reading the pair of words to the student. This facet of the administration procedure had been developed to ensure that students' responses were underpinned by their morphological knowledge and not their reading accuracy, as well as, ensuring that all students had the opportunity to answer all items within the measure. However, this support appeared to inadvertently benefit those students for whom the words were read. This is because these students were able to hear the words being read to them, with the correct pronunciation, as opposed to relying solely on a visual form and their own word reading abilities. Furthermore, because the items within this task were read silently,

there was no way to ascertain if students were reading the words within each item accurately, which may have influenced their response. Not all students may have acknowledged, to the researcher, their difficulties in reading a word or word pair, instead choosing to continue with the item in the task, which may have also influenced their response. In short, responses on this measure may have inadvertently been influenced by students' word reading ability.

Limitations of the Content of Measures

Morphological measures.

For the morphological production: morpho-syntactic task, students were required to use an identified base word to produce an affixed word, within the context of a sentence. Results indicated that a ceiling effect existed, for this measure, at both pre- and post-intervention testing. One factor contributing to these ceiling effects may be the weighting placed on differential categories of morphemes (affixes) within the content of the task. The morpho-syntactic task presented with an emphasis on inflectional knowledge; 15 of the 20 items tested students' inflectional knowledge (for example, volcano/volcanoes and do/doing), while four items tested knowledge of transparent derivational forms (for example, quick/quickly and write/writer), and one remaining item tested derivational and inflectional knowledge (play/players). It appears that the emphasis on inflectional forms and phonologically transparent derivational forms was not complex enough to measure students' ability in the area of morphological production, or to identify any increases in knowledge between testing periods.

For the morphological awareness-judgement measure, the means and standard deviations suggested that a range of scores was achievable within the current limits of the measure. However, of the 10 items that measured derivational knowledge, nine items contained phonologically transparent forms, while one item contained a phonological change

between the base and derived form (dirt-dirty). As with the morpho-syntactic measure, changes could be made to the measure to increase the complexity of the measure, in order to ensure that a range of scores is possible within subsequent research.

Psychosocial measures.

For the resilience measure, students were read a statement by the researcher and were asked to respond to the statement using a 7-point scale. It was observed that some younger students found the concept of a 7-point scale difficult to comprehend and respond to. These difficulties may have been compounded by the fact that the resilience measure also contained semantically different anchors for each item. This meant that students had to comprehend multiple phrases for each question that included the question being posed, as well as, the different anchors. Furthermore, the reversing of the scale for some items, in terms of the anchor points, may have also increased the cognitive load for these students. A similar observation was made for the self-efficacy scale; where students were read a question and were asked to respond using a 6-point numerical scale from 1 (*Not at all*) to 6 (*Very well*). For both measures, the span of the scales may have been an influential factor that contributed to students' difficulties in responding, with students having to select a response from a 6- or 7-point scale. It was also noted that these scales did not contain category descriptors, unlike the other psychosocial measures that all contained categorical descriptors within their scales.

For the reading attitude measure students were asked to respond to a question by selecting the appropriate Garfield character that was most reflective of their feelings. It was observed during the administration of this measure that students' responses might have been influenced by external factors. For example, one question pertained to students' feelings about going to a bookstore. While this question invariably resulted in positive responses, it was also commented by students that bookstores were great because they contain toys. Other

responses by students indicated that responses were also being determined by the comparisons that students made between reading and different elements that included digital technologies, sport, and social relationships. For example, some students responded to the question about getting a book for a present by making comparisons between receiving a book for a present versus receiving a tablet. These examples suggest that the internal validity of this measure was being challenged by external factors.

Limitations of the intervention.

The decoding phase of the Seven*Plus* intervention primarily involved students using the CVC syllable structure, with students being taught to find the initial vowel and adjacent consonant and to pronounce that specific group of letters (Marriott, 2013). Students continue in this manner building upon each chunk until they have fully decoded the word. For example, information would be decoded as in–for-mat-ion, while rabies would be decoded as rab-ies. Students are also encouraged to identify known chunks that may include morphological units and orthographic rules, but may also be a familiar grouping of letters, for example cia, which is found in the words special and magician. It became apparent during the course of the intervention that the emphasis on syllabification was negatively impacting on students' ability to develop decoding skills. Observations indicated that this was primarily due to the mismatch between the written and spoken language, with the identification of written syllables not always matching their sound, when the target word was blended together. This often required intervention by the researcher, because the students did not hold the skills to be able to flex the vowel sounds independently. These difficulties appeared to intensify for some students when they were encouraged to identify morphological units, orthographic conventions, and chunks of letters concurrently within the decoding process.

Observations identified that difficulties existed within the fluency component of the intervention. The lexicons held by some students were less developed and the fluency component was often interrupted with the decoding of words in the text, which were usually morphologically less complex but that were still unfamiliar to students. In order to meet student needs, the intervention was modified partway through by increasing the number of words selected for the decoding component; however, this resulted on additional time being spent on this part of the intervention, with less time being spent on the fluency component. It was also evident that students were also reluctant to read during the fluency component, even though the StoryBytes texts were short in nature. As such engagement in the repeated reading element of the fluency component was low, with the low engagement of some students often negatively affected the participation of others.

Conclusions and Future Directions

The results from this study indicate that a targeted literacy intervention can positively affect the literacy development in students with LLD, although statistically significant growth was not identified for all literacy measures. There is also evidence that psychosocial development can also be affected by a targeted intervention; however, these influences were variable, with significant changes to academic self-esteem and general and emotional self-efficacy. Associations were identified between measures of literacy and psychosocial development, although these were variable in nature. Limitations to the content and administration of the literacy measures means that growth in student knowledge may not have been accurately measured between the testing periods, especially in the area of morphological production. The current study enabled a battery of assessment measures to be selected and developed; however, the aforementioned limitations to content and administration of content measures needs to be addressed, to ensure growth in literacy skills can be accurately captured, in subsequent studies. This includes the addition of a

morphological production measure that assesses students' ability to transform base words, in a syntax-free environment. Findings also suggest that relationships exist between measures of literacy and psychosocial development; however, these associations are highly variable and additional studies are required to further explore these associations.

Observations during the study also highlighted limitations with regard to the decoding component within the intervention that related to syllabification. One of the findings of this study is the influential role that morphological awareness may play in the literacy development of students with LLD. Furthermore, the contribution of morphological awareness appears to be more influential in the development of word level reading skills than syllabification. This is because word-level reading skills increase in importance as students develop, due to a greater exposure to morphologically complex words. However, it is also evident that several factors exist that can negatively influence the development of word-reading skills in students with LLD. Firstly, Matthew effects are influential because students with LLD read fewer texts that may not contain morphologically complex words; therefore, the lexicons of students with LLD contain fewer words, which are of a lower quality (Stanovich, 1986). Secondly, lesser-developed word-reading skills can result in students not attempting to decode unknown words. This affects the ability of students' with LLD to develop a lexicon of morphologically complex words (Westby, 2004). Finally, the learned decoding skills of the student with LLD may result in repeated failures when attempting to decode words that are morphologically complex. This is due to phonological or orthographic shifts and these experiences can adversely affect the development of word reading skills. Overall, it appears that experiences and exposure to morphologically complex words are influential to the development of word level skills in students with LLD. It stands to reason that a focus on morphologically complex words should also include a focus on morphological awareness. This notion is also supported by literature that posits that growth in morphological

awareness (MA) and orthographic awareness (OA) subsume phonemic awareness skills (PA) that research has identified as influential to literacy development in younger students (Apel, Wilson-Fowler, Brimo & Perrin, 2012; Carlisle & Goodwin, 2013; Kirk & Gillon, 2009).

Chapter 4

Study 2-An Investigation into the Effectiveness of a Specific Literacy Intervention on the Psychosocial and Literacy Development of Students with Literacy Learning Difficulties in Year 4 to Year 6

Introduction

In Study 1, the examination of the effectiveness of a targeted intervention on the psychosocial and literacy development focused on a group of students from Year 4 to 6 who had literacy learning difficulties (LLD). Changes between pre- and post-intervention were deemed to be representative of the group as a whole and mean scores were duly reported. Results indicated that significant gains were demonstrated for academic self-esteem at post-intervention. This finding suggests that the evaluative judgements the students in this group were making about their competence in literacy had been positively affected over the course of the intervention. This, in turn, suggests that changes were occurring to how students perceived and evaluated themselves in relation to their schoolwork. The gains at post-intervention in general and emotional self-efficacy suggest that changes had occurred to the judgements that students were making about their capacity to complete concrete tasks; as well as, demonstrating increasingly positive levels of emotionality. However, the lack of gains in academic self-efficacy suggests that the changes in the judgements that students were making had not extended to academic tasks, meaning that students were perhaps no more confident in applying their newfound skills within their future schoolwork. The finding for academic self-efficacy may be an influential factor affecting the generalisability of the intervention to typical classroom environments. No significant gains were identified for the

resilience measure. It could be suggested that the ability of the students with LLD to adapt positively was being influenced by factors beyond those related to the intervention context (Schoon, 2006). One factor influencing the development of resilience in students with LLD could be their ability to generalise skills learned in the intervention into their classroom context, which would be suggestive of the newly learned skills acting to buffer or reduce the risk of the LLD. The finding could also indicate that the duration or content of the intervention did not promote increased levels of functioning, for the students with LLD. This would suggest that while significant gains occurred in some literacy measures, changes could be made to the intervention, in both content and duration, in order to promote facets of the literacy intervention as a protective factor for students. According to Rutter (2012), fostering academic achievement is influential in the development of resilience in students.

Significant gains were identified in multiple measures of literacy development that included word reading accuracy, reading comprehension, and morphological awareness-judgement. No significant gains were identified for students' rate of reading or morphological production. Analysis identified positive and negative associations between the literacy and psychosocial measures. Morphological awareness was positively associated with academic and global self-esteem, but was negatively associated with general and academic self-efficacy. This suggests that developing morphological awareness skills might be associated with changes in the evaluations that students were making regarding their academic competence. Social factors, which served as the frame of reference, within the intervention were also posited at being a possible influential variable for the gains identified in the self-esteem measures. Reading comprehension was positively associated with reading attitude. This suggests that comprehension was of high importance to the participants in Study 1 and that reading attitude was related to the ability of students to comprehend text. The lack of significant associations between the reading accuracy measures and psychosocial measures

suggest that the students most likely viewed word accuracy as less important than reading comprehension. However, the scores from the reading accuracy measures indicated that students primarily experienced difficulties in word-level skills. The emphasis that students placed on reading comprehension may be reflective of the ethos in the students' general educational context. As students progress through the education system, instruction tends to shift focus to higher-level skills that include reading comprehension (Shapiro, Fritschmann, Thomas, Hughes, & McDougal, 2014). However, it is evident that deficits in word-level skills that include word reading accuracy could be an affecting students' development of reading comprehension skills. This notion supports Gough and Tunmer (1986) whose SVR model posits that reading comprehension is the product of decoding and linguistic comprehension. Thus, remediating difficulties at the level of decoding could be influential in further developing students reading comprehension skills, which students appeared to view as important to reading proficiency.

Moving towards Study 2, it was important to consider the literacy intervention in relation to the findings from Study 1. These considerations needed to include the aforementioned identified associations between literacy and psychosocial development from Study 1, as well as, aspects of literacy development that were identified as being areas of difficulty, such as word reading accuracy. The positive correlations identified between morphological awareness and general and academic self-esteem suggest that Study 2 should include explicit instruction in specific literacy skills that includes a focus on developing morphological awareness. The negative association between morphological awareness and general self-efficacy and its academic subscale indicates that the intervention needs to include multiple opportunities for practice that are aimed at increasing students' confidence in targeted areas, in order to foster mastery in skill development. This in turn may increase

the likelihood that students would apply their newfound skills outside of the intervention context.

Selection and Development of Measures for Assessment

Limitations identified in Study 1 resulted in changes being made to specific assessment measures for Study 2. This section provides a rationale outlining the changes to the measures, as well as, in-depth detail regarding the changes to content and the administration of measures. No limitations were identified for the measures used for the control data (see Chapter 3 for a full description, p. 111). A framework for the final battery of assessment measures for Study 2 is provided in Table 11.

Adaptations to the Content of the Literacy Measures

Burt.

In the current study the Scottish edition of the Burt was replaced with the New Zealand revised edition. Following the previous study, it was brought to the researcher's attention a version of the Burt had been developed for New Zealand students (Gilmore, Croft, & Reid, 1981). While the Scottish version of the Burt has been widely used in the New Zealand educational system, the appropriateness of this version for New Zealand students had been debated (Gilmore et al., 1981). Research indicated that New Zealand and Scottish students performed differently on the test overall, which was partly attributed to the word order of the test (Gilmore et al., 1981). A New Zealand edition of the Burt was subsequently developed that contained a word order based on the relevance of words for different subgroups of students (Gilmore et al., 1981). The test reports high internal consistency, with the Kuder-Richardson Formula 20 tests, yielding reliability co-efficient of .96 (Gilmore et al., 1981). In the current study, a Cronbach's alpha of .97 was calculated.

Table 11. *An Index of Tests in the Assessment Battery for the Intervention Group (Study 2)*

Literacy Development	Test
Accuracy	Burt (single word reading)
	NARA-accuracy (text based word reading)
Comprehension	NARA-comprehension (literal, inferential)
Rate	NARA-rate (text levelled passages)
Morphology	Morphological Awareness (judgement)
	Morphological Production (morpho-syntactic)
	Morphological Production (word analogy)
Psychosocial Development	**Test/Subtest**
Global Self-Esteem	Rosenberg Self-Esteem Scale
Academic Self-Esteem	Self-Perception Profile for Children-Scholastic Competence subscale
Resilience	Sense of Coherence-Orientation to Life Questionnaire-Manageability subscale
General Self-Efficacy	Self-Efficacy Questionnaire for Children
Academic Self-Efficacy	
Social Self-Efficacy	
Emotional Self-Efficacy	

Morphological Awareness-Judgement Test.

In Study 1, a range of scores were identified for this measure that indicated existing levels of morphological awareness skills enabled students to accurately judge the relationship between base words and their derived forms. However, research has indicated that students' derivational understandings increase significantly between Year 4 and 6 (Anglin, 1993). This

may be due to increases in student exposure to morphologically complex words, as well as, increased understandings about the internal structure of words (Nagy et al., 2006). The decision was made to include opaque derivational forms that included phonological and/or orthographic changes. Increasing the complexity of the items by including opaque forms would ensure that a range of scores could be achieved within the limitation of the measure within the current study, which would enable development in morphological awareness skills between testing periods to be captured. Four new items were included in the measure that included opaque derivational forms. The measure yielded a Cronbach's alpha of .44. An example of the items is provided below and the measure is provided in Appendix 3.

shade-shadow (Correct response: Yes. Derivational-opaque).

fame-famous (Correct response: Yes. Derivational-opaque).

In Study 1, explicit practice items were not contained within the judgement task. In Study 2 practice items were included in the judgement measure. This provided students with practice, in terms of the task's requirements, as well as, ensuring consistency and clarity in the administration of the measure for all students. Two practice items were included into the measure; selected from those items removed from the testing items used in Study 1.

An adaptation was made to the administration of the judgement measure based on the limitations of Study 1, which concerned the influence that students' word reading ability had on students' response to the items contained in the measure. For Study 2, the measure was administered by the researcher who read aloud the pairs of words to students. Students were asked to verbally judge the relationship, with a yes or no response, which was recorded by the researcher. As with Study 1, students were also visually presented with the task.

Morphological Production-Morpho-Syntactic Test.

Results from Study 1 for the morpho-syntactic measure indicated that a ceiling effect existed, at both testing points. This was attributed to the over-representation of inflectional forms, as opposed to derivational forms, in the measure's content. The ceiling scores indicated that some students had developed morphological awareness skills that enabled them to generate inflectional forms. Research has found that children develop the ability to generate inflectional forms prior to developing the ability to generate derivational forms (Abbott, Green, & McCutchen, 2008). Ensuring that the morpho-syntactic measure provides a level of complexity that enables change between pre- and post-intervention testing to be identified means that a higher number of derivational items need to be included in the measure. Derived forms are more complex than inflectional forms, due to grammatical changes and, at times, phonological and orthographic shifts (Abbott et al., 2008). Research also indicates that the phonological relationship between the base and its derived form is an influential factor in the recognition and processing of morphological relationships (Abbott et al., 2008). Thus, including derivational forms that are transparent in nature or that contain phonological and/or orthographic shifts can increase the complexity of the morphological production task.

In Study 2, the number of items involving derivational forms was increased to 16 items. Derivational forms were selected from the suffixes that had been identified by Carlisle (2000) as being familiar to students in Years 4 to 6 that included: -th, -ous, -er, -ion, -able/-ible, and –y. It was viewed that these suffixes provided a mixture of transparent and opaque derivational forms that would enable students to demonstrate their morphological production skills at both testing points. Of the 16 derivational items, 12 items included phonological shifts between the base word and their derived form. Of the four remaining items, three included inflectional suffixes and one included a derivational and an inflectional suffix. In the

current study, the measure yielded a Cronbach's alpha of .76. An example of this task is provided below:

Danger: Wild animals that live in the forest can be very ... (Correct response: dangerous; Derivational).

Magic: My favourite person at the fair was the ... (Correct response: magician; Derivational with phonological shift).

Play: In a football team there are eleven … (Correct response: players; Derivational/ Inflectional).

One point was given for each correct response. The measure is provided in Appendix 4.

Morphological Production-Word Analogy Test.

This test was an adaptation from Nunes, Bryant, and Bindman (1997). Students were presented with three words. The first two words constituted a related pair and students were asked to transform the third word in the sequence to form a second pair of words, which followed the pattern in the first pair of words. According to Nunes et al. (1997) morphology and syntax are inextricably linked, with children developing morphemic awareness throughout childhood; however, this awareness is largely implicit and difficulties emerge when students are asked to make explicit decisions regarding the morphemic properties of words. This task was introduced as means to measure students' ability to transform base words or inflected forms at word-level, independent of sentence level context, which had been highlighted as a factor affecting students' responses in the morpho-syntactic measure in Study 1.

The measure yielded a Cronbach's alpha of .78. Of the 20 items comprising the word

analogy test, 12 items involved derivational suffixes and eight items involved inflectional suffixes. Of the 12 derivational items, six items were opaque and contained phonological shifts. Of the eight inflectional items, seven items required the production of inflectional forms and one item required students to decompose an inflectional form to a base form. The researcher read the items aloud to the student, as well as, providing a visual representation of the task to the child. The researcher recorded the student's responses. Each set of words was read a maximum of two times. An example of the items is provided below:

work: worker, swim: ? (Correct response: swimmer; derivational).

celebrate: celebration, educate: ? (Correct response: education; derivational with phonological shift)

see: saw, dance: ? (Correct response: danced; Inflectional)

One point was given for each correct response. Raw scores out of a maximum of 20 were collected for analysis. The measure is provided in Appendix 5.

Adaptations to the Administration of Morphology Measures

The addition of the analogy measure into the assessment battery resulted in careful consideration being given to the content of all the morphological measures, to ensure that no overlap occurred between the items contained in the measures. The review indicated that the measures would need to be administered in a specific order. This was due to the overlap of one pair of words (discuss and discussion) that were contained in the judgement measure and the analogy measure. It was decided that the administration of the morphology measures would follow the following sequence: judgement, morpho-syntactic, and word analogy. This was because for the judgement task students were required to determine whether a relationship existed between discuss and discussion, whereas, the analogy measure required

students to use their knowledge of the relationship between discuss and discussion to transform a third base word.

Adaptations to the Content of Psychosocial Measures

Observations from Study 1 indicated that some students had difficulty comprehending and responding to two measures (resilience and self-efficacy) that contained a wide response scale. These measures also contained fewer categorical references within the scale, which may have contributed to students' difficulties. The inclusion of these measures in the current study meant that support needed to be provided to students, however, the support needed to be emplaced without comprising the validity of the measure. Furthermore, the support had to be put in place for all participants, in order to ensure consistency in the administration of the questionnaire. Providing support via categorical references was impractical due to the breadth of the response scales. However, referential support could be provided to students via pictorial representations that could be adjusted for the items where the semantic anchors had been reversed, such as in the resilience measure. Using simple cartoon facial images is also less likely to lead to emotional and selection bias, which can emerge with the use of distinguishing features or the use of complex alternate forms that can influence students' responses (Reynolds-Keefer & Johnson, 2011). Simple pictorial representations of a happy and a sad face were added to each item to act as reference points for the semantic anchors in each scale.

Resilience.

This measure included 10 questions extracted from the manageability subscale of the Sense of Coherence: Orientation to Life Questionnaire (Antonovsky, 1987). In the current study, the measure had a Cronbach's alpha of .67, which was slightly lower than the .72 calculated in Study 1. As with the previous study, each statement by the researcher and

students were required to select a response to the statement using a 7-point scale. In the current study, the response scale was anchored with two simple pictorial representations of a happy and a sad face, which anchored the semantically different statements.

General self-efficacy.

The general self-efficacy scale consists of 24 items that measure a child's perceptions of their capabilities to perform desired behaviours in order to meet specific goals (Muris, 2001). The full scale also comprised three subscales (academic, social, emotional) of eight items each. Reliability tests of the scale for the current study found a high internal consistency for the full scale (Cronbach's alpha = .94), as well as, for the three subscales, academic (Cronbach's alpha = .90), social (Cronbach's alpha = .84), and emotional (Cronbach's alpha = .87). Students were read each question by the researcher and were asked to respond on a numerical scale from 1 (*Not at all*) to 6 (*Very well*). In Study 2, the semantic statements were anchored with two simple pictorial representations of a happy and a sad face, in order to support students' responses.

A Rationale for the Adaptation of the Intervention Programme

Observations during Study 1 highlighted two limitations to the Seven*Plus* intervention. The first limitation regarded the use of syllabification and focus on the CVC syllable structure within the decoding component. The second limitation related to students' unwillingness to engage in the reading during the fluency component of the intervention, which included a repeated reading format with an impress model.

In the current study, syllabification was replaced by a focus on metalinguistic awareness that included a primary focus on morphological awareness, but also included phonological and orthographic awareness. Findings from Study 1 indicated that a focus on morphological awareness in Study 2 would be beneficial, primarily due to the positive

associations between morphological awareness and self-esteem measures. Research has also indicated that morphological awareness is influential in literacy development that includes word-level reading. Mann and Singson (2003) have found that by age 10, knowledge of word structure predicts decoding skills to a greater degree than phonological awareness.

Results from Study 1 indicated that a focus at word-level skills is important. This focus is of increased importance for students with LLD because proficiency in word-reading skills for these students can be affected by several factors. Matthew Effects, or the notion that the rich get richer while the poor get poorer, are influential because students with LLD read fewer texts, which contain fewer complex words; thus, the lexicons of students with LLD contain fewer words, which are of a lower quality (Stanovich, 1986). A lack of word-reading skills can also decrease students' decoding attempts of unknown words, which in turn influences students' ability to develop a lexicon (Carlisle, 2007). Self-efficacy can also be negatively affected because students with LLD can experience repeated failures when attempting to decode complex words, due to underdeveloped word-reading skills. These experiences negatively affect the development of word reading skills, as well as, increasing the likelihood of avoidance behaviours by students (Tunmer et al., 2003).

The increase in exposure to morphologically complex words, as children develop, also supports the notion that developing morphological awareness skills is critical in students (Carlisle, 2003). However, the development of metalinguistic skills does not occur in isolation, with morphological awareness being developed along with phonological, orthographic, and syntactic awareness, which interact to affect semantic awareness. Developing orthographic awareness was viewed as important because the addition of morphemic units to base words often requires the transformation of letter patterns within the base word. For example, the transformation of the word admit to admission requires knowledge that the letter t is removed and the variant of the –ion suffix, –ssion, is added. The

focus on morphological and orthographic awareness may also positively influence semantic awareness; that is, reading comprehension; an area that the results indicated from Study 1 was important to the psychosocial development of students with LLD.

Observations from Study 1 indicated that students were unwilling to engage in reading during the fluency component of the intervention. The fluency component was retained in Study 2 because research has indicated that additional exposures to text increases the representation of the word and its constituent components within students' lexicons (Carlisle & Katz, 2006). Thus, it was viewed that the fluency component provided additional exposure to words, further contributing to developing students' lexicons. However, the fluency component of the Seven*Plus* intervention was renamed Jungle Reading. Fundamental to the renaming of the fluency component was student ownership. Each component within the repeated reading model was renamed to align with the jungle focus, which sought to convey an element of ownership to the student, in order to encourage engagement and active participation during reading.

Research Questions

The aim of the current study was to determine the effectiveness of a targeted intervention on the psychosocial development of students with literacy learning difficulties. The current study was concerned with whether targeting *specific* literacy skills that focused on the development of metalinguistic skills that included morphological and orthographic awareness would affect the psychosocial development of students with LLD. The study also aimed to determine whether a targeted intervention would improve the literacy development of the students and whether change in literacy development was associated with change in psychosocial development. The following research questions were identified:

1. Does the literacy development of students with LLD improve over the period of the targeted intervention that includes instruction in *specific* literacy skills?

2. Does a targeted intervention, which includes instruction in *specific* literacy skills, promote psychosocial development?

3. Is change in the literacy development of students with LLD associated with change in psychosocial development?

Method

Participants

The study involved 21 students from Year 4 to 6 who also attended the same contributing state primary school as the participants from Study 1. Eligibility for inclusion into the current study involved two components. Firstly, students were required to be identified as a low progress reader by the Deputy Principal in charge of the senior school. A low progress reader was defined as a student who had made little progress, or a lack of progress, in their reading development during their time at the participating school. Secondly, students were required to be performing at, or below, Stanine 4 on the STAR measure (Elley, 2001); a standardised measure used by the participating school. Students were not eligible for inclusion into the intervention group if they were currently receiving any individualised support for their literacy development within the school context, or if they had been involved in the previous study.

One student left the participating school prior to the end of the study; therefore, the final sample consisted of 20 students (13 male and 7 female) who ranged in age from 7 years 7 months to 10 years 5 months. The sample included 10 students from Year 6 (6 male, 4 female), one female student from Year 5, and nine students from Year 4 (7 male, 2 female).

Three students in the final sample were identified by the school as meeting the criteria for Ministry of Education funding as English Speakers of Other Languages (ESOL). Parents and caregivers of 19 students provided written informed consent for their child's participation in the study. A classroom teacher obtained oral informed consent from the parent of one student and an attestation of this consent was provided to the researcher. All students provided personal assent to participating in the study, prior to the collection of pre-intervention data.

Two control groups were utilised in the study. The control groups comprised the remaining students in Years 4 to 6 of the participating school (n = 88). Control Group 1 (n = 10) included 10 students participating in an alternate intervention for their literacy development within the school setting. Control Group 2 (n = 78) included the students from Years 4 to 6, who had been identified by the Deputy Principal as progressing in their reading development at the expected, or above the expected, rate developed by the school in accordance to National Standards. Students were excluded from Control Group 2, if they were included in the intervention groups within the research framework. The principal provided consent for the collection of control data. All students in Years 4 to 6 provided personal assent prior to the collection of control data. Demographic information is presented in Table 12.

Table 12. *Demographic Information for Participants (Study 2)*

	Intervention Group	Control Group 1	Control Group 2	Difference	Effect Size
Age					
M(SD)	9.13 (0.96)	8.75 (0.77)	9.22 (0.81)		
Range	7: 75 – 10: 5	7: 83 – 10: 5	8: 00 – 10: 75	$p = .249$	$\eta^2 = .03$
Gender					
Female	35.0% *(n = 7)*	50.0% *(n = 5)*	57.7% *(n = 45)*		
Male	65.0% *(n = 13)*	50.0% *(n = 5)*	42.3% *(n = 33)*		*Cramer's V*
Total	100% *(n = 20)*	100% *(n = 10)*	100% *(n = 78)*	$p = .175$	= .190
Year Level					
Year 4	45.0% *(n = 9)*	60.0% *(n = 6)*	41.0% *(n = 32)*		
Year 5	5.0% *(n = 1)*	30.0% *(n = 3)*	29.5% *(n = 23)*		
Year 6	50.0% *(n = 10)*	10.0% *(n = 1)*	29.5% *(n = 23)*		*Cramer's V*
Total	100% *(n = 20)*	100% *(n = 10)*	100% *(n = 78)*	$p = .205$	= .166

Note. Age = age in months/12

General Procedure

A pre- post-intervention assessment research design was adopted in the study, which was conducted during the first two school terms of 2014. The researcher collected pre-intervention data over a five-day period during the first school term. The literacy measures were administered to students individually and the psychosocial measures were administered using a questionnaire format, in small groups of between two to four students. The measures were administered in three parts. The first part included the Burt and the morphological measures (in pre-determined order), which were orally administered to ensure that the

students' responses were not reliant on their word reading ability. The second part included the administration of the NARA. The final part comprised the administration of the psychosocial measures. As with the previous study, students were not provided with feedback on any items contained in the measures.

The assessments were administered in the researcher's teaching office, within the participating school's senior area. Testing conditions were put into place in order to minimise student fatigue that included the administration of one element of assessment, per student, per day. The Burt and NARA were administered according to their respective published procedure. The procedures from the previous study for the administration of the morphology measures and the psychosocial questionnaire were utilised in the current study; thus, ensuring consistency in administration for all students. The assessments were carried out during classroom hours.

The intervention consisted of 39 sessions. Each session lasted for approximately 30 minutes and was held during the identified literacy times of the participating classes. Students attended up to four sessions a week, over a 12-week period. The grouping of students occurred in consultation with staff, with students being primarily grouped according to year level. Where possible, groups were consistent throughout the length of the intervention; however, some groups' composition altered early in the study to meet teachers' needs. The average attendance rate for students was 32 sessions, with a range of 20-39 sessions. The administration of post-intervention assessment, which mirrored pre-intervention assessment, was carried out over a six-day period during Week 8 and Week 9 of Term 2.

Reliability

Inter-rater reliability was not carried out for the current study. As with the first study, the measures being used in the study were established measures used within educational and

psychological research. The scoring of the literacy and psychosocial measures for the study was deemed to be clear and unambiguous, and as such free from subjectivity. However, one item (Question 5) in the morpho-syntactic measure was ambiguous due to plausible alternate answers being presented. This ambiguity was attributed to the adaptation of the measure to include more complex derivational items. This issue was resolved following consultation with the researcher's primary supervisor that involved a discussion regarding the acceptance of alternate answers based on morphological and syntactic principles. Evidence for reliability was also demonstrated via the reliability checks that were performed for the measures contained within the study. Reliability data for the resilience and general self-efficacy was provided within the measures descriptions. The reliability test for the global self-esteem measure identified a Cronbach's alpha of .69, which was comparable to Study 1. The reliability test for the academic self-esteem measure found high internal consistency for the subscale (Cronbach's alpha = .84). Reliability tests for the NARA measure identified high internal consistency for the accuracy (Cronbach's α = .96), comprehension (Cronbach's α = .79), and the rate components (Cronbach's α = .80). Additional information regarding reliability checks can be found in Chapter 3 (p. 127).

Intervention

Session Structure

In the previous study, the teaching and learning session format had been underpinned by the Seven*Plus* intervention and its decoding, vocabulary, and fluency components (Marriott, 2013). In the current study, the teaching and learning session format was adapted in order to respond to the aforementioned limitations identified in Study 1. Components were added into the session format that specifically aimed to develop students' metalinguistic awareness. This included an initial focus on phonological awareness skills and a sustained

focus on morphological and orthographic awareness skills, within the decoding component. The phonological awareness component focused on students developing their knowledge of vowel and consonant sounds. Explicit instruction was provided in syllable structures that included simple (for example, CV, VC, CVC, and CCVC) and complex structures (for example, CVCC, CCVCC, CCCVC, and CCCVCCC). Morphological and orthographic awareness was developed via an adaption of Moats' (2010) strategy to read longer words that involved identifying these components within words. The strategy also comprised the decoding strategy for the current study. This is provided in Table 13, under the decoding section. Elements of orthography and morphology were systematically introduced and explicitly taught to students during teaching and learning sequences. The morphology focus was underpinned by an etymological focus with explicit instruction in inflectional (-ed, -s, er, -est), derivational suffixes (-ly, -less), and compound words from the Anglo-Saxon layer of English, as well as, prefixes (un-, re-, pre-, in-) and suffixes (-ible, -ion, -ment, -ful) from the Latin-French layer of English (Moats, 2010). The orthography focus was also underpinned by an etymological focus with explicit instruction in vowel teams, digraphs/trigraphs, silent letter combinations from the Anglo-Saxon layer of English, soft c and g sounds from the French (Norman) layer of English, and /ph/ for f and /ch/ for k from the Greek layer of English (Moats, 2010). Students were provided with daily independent (decoding) practice in reading single words that were morphologically complex and that were derived from the targeted morphological and orthographic focus (for example, invention, information, consideration, factories, motionless) using the strategy developed by Moats. The vocabulary component of Marriott's intervention was retained, along with the fluency component that was subsumed under the Jungle Reading title. The session format is provided in Table 13.

Intervention Text

StoryBytes, published by Sharp Reading, are the recommended text for Seven*Plus*

(Marriott, 2013). For the current study, easy and medium StoryBytes were utilised. Easy-levelled StoryBytes were used to teach students the session format. Medium-levelled StoryBytes were used for all subsequent instruction. Further information about the intervention text can be found in Chapter 3 (p. 129).

Table 13. *General Format for Intervention Sessions (Study 2)*

Key Component	Structure
Decoding	Students independently practice reading longer words (adapted from Moats, 2010):
	Placing a line underneath each vowel grapheme
	Drawing a box around any known morphological features
	Drawing a circle around known orthographic features
	Blending the word together using knowledge of syllable sounds. Blend from left to right. Flexing the accent for correct sound
	Discussion of word meaning or word class focusing on morphological units of meaning
Orthographic	Students develop knowledge of targeted orthographic patterns of letters through a variety of activities
Morphological	Students develop knowledge of targeted morphological units through a variety of activities
	Seven*Plus*: Jungle Reading
Attack Phase	Words are selected from focus text that are potentially unknown by students
	Students and teacher discuss and apply the strategy for reading longer words
	Discussion of meanings of selected words from the decoding component, developing and extending morphological awareness skills
Pursue Phase	Researcher reads a section of the text to students. All students listen, following the text using their text cards
Jungle Phase	Researcher and students re-read section of the text as a group
King or Queen of the Jungle Phase.	Students take turns to re-read sentences or sections of the text out loud. Students follow, silently reading using their text cards
	Brief discussion of text using comprehension questions posed that focus on reinforcing vocabulary to facilitate comprehension

Results

The introduction to Study 2 outlined three research questions. In order to answer these questions, the following analyses were carried out using SPSS (Version 22).

1. Descriptive statistics were performed and examined to determine the levels of literacy and psychosocial development that students presented at pre- and post-intervention.

2. Paired samples *t*-tests were carried out and examined to determine the difference between mean scores at pre- and post-intervention for measures of literacy and psychosocial development.

3. Correlations were calculated and examined to determine if relationships existed between the measures of literacy and psychosocial development contained within this study.

4. Partial correlations were performed and examined to determine if the variables of age and year level, respectively, influenced the relationship between the literacy and psychosocial development measures.

5. Correlations and mixed between-within analysis of variance were performed to determine differences in performance existed within and between the performance of intervention and control groups, on school-based assessments, over the period of the intervention.

Descriptive statistics for the intervention group are presented in Table 14. Analysis found a range of scores for the reading accuracy measures (Burt and NARA-accuracy). The mean score at pre-intervention for the Burt was 40 out of a possible total score of 110 (36 %). The mean score, at pre-intervention, for students on NARA-accuracy was 27 out of a possible total score of 100 (27 %). At post-intervention, wider variability was found for the Burt (*SD* = 10.65) than had been found at pre-intervention *(SD* = 10.14). In contrast, the variability in the NARA-accuracy had decreased slightly from 9.94 to 9.55 between testing periods. For the Burt, increases in both the minimum and maximum scores were identified between testing periods, from 23 to 33 and 69 to 83, respectively. Whereas, only a small increase in the minimum score was identified for NARA-accuracy (18 to 20), although it was evident that larger increases occurred in the upper range between testing periods (53 to 62).

At pre-intervention, students were able to correctly answer an average of 10 out of a possible 44 questions correctly on the NARA-comprehension component. There was wide variability in scores at pre-intervention, with a minimum of 4 and a maximum of 22. At post-intervention, increases were evident in both the minimum and maximum scores, with greater gains being evident at the lower end of the range, with an increase in the minimum score from 4 to 9. For NARA-rate, the range of scores indicated wide variability in students' rate of reading, with a minimum score of 20.25 words read per minute to a maximum score of 48.72 words per minute. At post-intervention, a notable decrease in the standard deviation occurred from 8.28 to 6.52. A decrease in the variability of scores was demonstrated, with the main increase occurring in the minimum score (20.25 words read per minute to 30.09).

Table 14. *Pre- and Post-Intervention Scores for the Intervention Group (n = 20) for all Measures Included in the Assessment Battery (Study 2)*

	Pre-test			Post-test		
Test (maximum obtainable score)	*M*	*SD*	Range	*M*	*SD*	Range
Literacy Development						
Burt (110)	40.10	10.14	23 - 69	49.15	12.65	33 - 83
NARA-Accuracy (100)	27.20	9.94	18 - 53	35.40	9.55	20 - 62
NARA-Comprehension (44)	10.20	3.81	4 - 22	14.35	3.76	9 - 25
NARA-Rate of Reading (Words read/Total time x 60)	29.66	8. 28	20.25 - 48.72	30.09	6.52	30.09 - 52.24
Morphological Awareness-Judgement (20)	10.60	3.27	6 - 18	12.90	4.28	4 -19
Morphological Production-Morpho-Syntactic (20)	8.75	3.04	0 - 14	11.65	3.08	7-18
Morphological Production-Word Analogy (20)	7.40	2.46	4 - 13	11.40	2.78	5 -16
Psychosocial Development						
Rosenberg Self-Esteem Scale (40)	27.00	4.33	19 - 36	26.85	5.56	15 - 37
Academic Self-Esteem (24)	14.85	4.30	8 - 21	14.05	4.58	6 - 24
Resilience (70)	44.95	7.85	19 - 68	38.40	10.81	25 - 53
General Self-Efficacy-Academic (48)	30.95	10.81	9 - 45	29.90	10.10	8 - 41
General Self-Efficacy-Social (48)	32.55	7.93	15 - 45	31.20	8.43	18 - 45
General Self-Efficacy-Emotional (48)	32.15	10.11	12 - 47	31.00	8.49	10 - 43
General Self-Efficacy-Total (144)	95.65	25.89	42 - 131	92.10	22.49	36 - 128

Analysis of the morphological measures indicated that students performed better between testing periods on the judgement task, with mean scores of 10.60 and 12.90, respectively, out of a possible 20. Increased variability for this measure was identified between testing periods, with the standard deviation increasing from 3.27 to 4.28. A decrease was identified in the minimum score between testing periods from 6 to 4. For the two measures assessing morphological production, results indicated that students demonstrated higher levels of proficiency on the morpho-syntactic measure. At pre-intervention, the mean score was 8.75, out of a possible 20 questions, which increased to 11.65 post-intervention. The greatest gains overall were demonstrated by students in the word analogy task, with the pre-intervention mean score increasing from 7.40 to 11.40 at post-intervention. A floor effect was demonstrated at pre-intervention testing for the morpho-syntactic measure, with a minimum score of 0.

For the two measures that assessed self-esteem, students indicated higher scores on the global self-esteem measure with a mean score at pre-intervention of 27, out of a possible 40. The variability of scores for this measure increased between testing periods with increases to the standard deviation from 4.33 to 5.56. This was accompanied by an increase in the range of scores, with a notable decrease in the minimum score between testing periods from 19 to 15. An increase in the distribution of scores, between testing periods, was also evident for the academic self-esteem measure with the minimum score of 8 decreasing to 6 at post-intervention and the maximum score of 21 (out of a possible score of 24) increasing to 24 post-intervention. The maximum score at post-intervention also indicated a ceiling score for the academic self-esteem measure.

Scores for the resilience measure indicated a decrease in the mean score from 44.95 to 38.40, out of a possible 70, between testing points. The standard deviation increased between testing periods from 7.85 to 10.81. A decrease in the dispersion of scores was also identified

between testing periods with an increase in the minimum score of 19 to 25 and a decrease in the maximum score from 68 to 53. The decrease in the maximum score meant that the ceiling effect that was approached at pre-intervention, had dissipated at post-intervention.

For the three subscales comprising general self-efficacy, the lowest mean at pre-intervention was identified for academic self-efficacy (M = 30.95), followed by emotional self-efficacy (M = 32.15), and social self-efficacy (M = 32.55). Academic self-efficacy demonstrated the widest variability of scores at pre-intervention, with a minimum score of 9 and a maximum score of 45 (out of a possible 48). The smallest standard deviation at pre-intervention was identified for social self-efficacy (SD = 7.93); however, this increased at post-intervention (SD = 8.43). All three subscales demonstrated decreases to their mean scores at post-intervention testing. The raw scores for the three subscales were combined to provide a full-scale general self-efficacy score. At pre-intervention the mean score for general self-efficacy was 95.65 that decreased to 92.10 post-intervention. Decreases in the minimum and maximum scores were identified between pre-and post-intervention testing. The minimum score of 42 decreased to 36 and the maximum score of 131 (out of a possible 144) decreased to 128.

The first aim of the current study was to determine if the literacy development of students with LLD had increased over the course of the targeted intervention. In order to address this aim, paired sample t-tests were conducted to determine if differences existed between the performances of students at pre- and post-intervention testing. Eta squared statistics were also performed to determine the effect size for the paired sample t-tests, using Cohen's (1988) guidelines that included: small (.01), medium (.06), and large (.14). Results indicated that students performed significantly better at post-intervention on the Burt, t (19) = -10.169, $p < .001$, $\eta^2 = .84$ and NARA-accuracy, t (19) = -9.032, $p < .001$, $\eta^2 = .81$. Students also made significant gains between testing points on the NARA-rate measure, t (19) = -

5.701, $p < .001$, $\eta^2 = .63$. Concerns regarding the normality of the distribution of scores, for NARA-accuracy and rate resulted in non-parametric analyses being performed. The Wilcoxon Signed Ranks Test found a significant difference for NARA-accuracy, Z (19) = -3.827, $p < .001$ and NARA-rate, Z (19) = -3.510, $p < .001$.

For NARA-comprehension, analysis indicated significant differences between the mean scores for students, t (19) = -5.861, $p < .001$, $\eta^2 = .64$. Additional analysis was carried out on the comprehension component to determine if differences existed between the mean scores, at pre- and post-intervention, within the text levels contained in the NARA. These results are presented in Table 15.

Table 15. *Results of Paired t-tests for NARA-Comprehension (Study 2)*

NARA Text Level	*n*	*t*	*p*
1	20	-2.042	.055
2	20	-3.760	.001
3	8	-.919	.388
4	2		
5	1		
6	0		

Statistically significant differences were only identified for Level 2 of the NARA text, t (19) = -3.760, $p = .001$, $\eta^2 = .45$. Mean differences in Level 1 scores approached statistical significance, t (19) = -2.042, $p = .055$, $\eta^2 = .20$. Analysis was not carried out beyond Level 3 due to small sample size.

For the morphological measures, *t*-tests were first carried out assuming normal distribution. Significant differences were found in the mean scores for all three measures:

morphological awareness-judgement, t (19) = -2.258, $p < .05$, $\eta^2 = .21$; morphological production-morpho-syntactic, t (19) = -4.781, $p < .001$, $\eta^2 = .55$; and morphological production-word analogy, t (19) = -7.958, $p < .001$, $\eta^2 = .77$. Analysis was also carried out using a non-parametric *t*-test for the word analogy measure, due to concerns regarding the normality of distribution. The Wilcoxon Signed Ranks Test found a significant difference in mean scores between testing periods for this measure, Z (19) = -3.880, $p < .001$.

The second aim of the study included determining whether a targeted intervention that included instruction in specific literacy skills, promoted psychosocial development. As with the previous study, the first step in addressing this question was to determine whether differences existed in the mean scores of the psychosocial measures, between testing points. It was observed that all of the psychosocial measures demonstrated decreases in mean scores between testing periods. Subsequent paired sample *t*-tests failed to identify any significant differences for any of the psychosocial measures. The resilience measure approached significance, t (19) = 2.041, $p = .055$, $\eta^2 = .18$; however, this was due to a decrease in mean scores between pre-and post-intervention testing. These results are presented in Table 16.

Although the evidence suggested that statistically significant change did not occur for the psychosocial measures the following section will focus on the main research question of whether change in literacy levels, produced by the intervention is associated with change in self-reported psychosocial development. Pearson product-moment correlations were performed in order to examine the relationship between the measures of literacy and psychosocial development. The correlations are displayed in Table 17. Scatterplots were used as a visual aid to ensure that there were no non-linear relationships within the data. Analysis identified a negative correlation between NARA-comprehension and academic self-esteem, $r = -.463$, $n = 20$, $p = .04$, indicating that increases in NARA-comprehension were

associated with lower levels of academic self-esteem. A negative correlation was also identified for NARA-rate and academic self-esteem, r = -.558, n = 20, p = .011, indicating that increases in NARA-rate were associated with lower levels of academic self-esteem. A positive correlation was found between morphological production-word analogy and social self-efficacy that approached statistical significance, r = .440, n = 20, p = .052. This indicated that increases in word analogy were associated with higher levels of social self-efficacy. Statistical significance was also approached for NARA-accuracy and global self-esteem, r = .437, n = 20, p = .054, indicating that increases in in-text word reading accuracy were associated with higher levels of global self-esteem.

Table 16. *Results of the Paired t-tests (n = 20) for the Psychosocial Measures (Study 2)*

Psychosocial Measure	*t*	*p*	*d*
Global Self-Esteem	.116	.910	.00
Academic Self-Esteem	.961	.348	.05
Resilience	2.041	.055	.18
General Self-Efficacy	1.064	.300	.06
Academic Self-Efficacy	.567	.577	.02
Social Self-Efficacy	1.221	.237	.07
Emotional Self-Efficacy	.718	.481	.03

As for the previous study, sample size was acknowledged as a factor influencing statistical significance (Pallant, 2013). The sample size (n = 20) resulted in the Pearson product-moment correlations being reviewed using Cohen's (1988) guidelines for

determining effect sizes that included: small (r = .10 to .29), medium (r = .3 to .49), and large (r = .50 to 1.0).

An additional five negative correlations of medium strength were identified between NARA-rate and psychosocial measures. These included global self-esteem, r = -.385, n = 20, p = .093; resilience, r = -.402, n = 20, p = .079; as well as, general self-efficacy, r = -.310, n = 20, p = .184 and its academic, r = -.369, n = 20, p = .110 and emotional subscales, r = -.409, n = 20, p = .073. A small positive correlation was identified for NARA-rate and social self-efficacy, r = .274, n = 20, p = .242 that indicated increases in rates of reading were associated with higher levels of social self-efficacy. A medium negative correlation was also identified between NARA-comprehension and resilience, r = -.387, n = 20, p = .092, which indicated that as comprehension scores increased resilience decreased. Two measures were positively and moderately associated with global self-esteem, in addition to NARA-accuracy that included the Burt, r = .242, n = 20, p = .304 and NARA-comprehension, r = .265, n = 20, p = .260.

To determine the amount of variance shared by the measures of literacy and psychosocial development, coefficients of determination were calculated that were subsequently converted into percentages of variance. Calculations indicated that the Burt explained 6 % of the variance found for global self-esteem, while NARA-accuracy and comprehension accounted for 19 % and 7 %, respectively. NARA-rate explained 15 % of the variance found for global self-esteem, 31 % of the variance in respondents' scores for academic self-esteem, and 16 % of the variance in the resilience measure. NARA-rate accounted for 10 % of the variance for general self-efficacy; as well as, 17 %, 14 %, and 8 % of the variance for emotional, academic, and social self-efficacy, respectively. NARA-comprehension accounted for 21 % of the variance in students' scores on the academic self-esteem scale and 15 % of the variance on the resilience measure.

Following correlational analysis, partial correlations were conducted in order to determine the influence of year level and gender, respectively, on the measures of literacy and psychosocial development. These results are presented in Table 18 (year level) and Table 19 (gender). Results indicated that when year level was controlled for, the negative correlation between NARA-rate and global self-esteem increased in strength from r = -.385 to r = -.458. Calculations of variance indicated that this increase explained an additional 6 % of variance, to a total of 21 %, for the global self-esteem measure. Analysis also indicated that controlling for year level resulted in stronger relationships being identified between academic self-esteem and several literacy measures. A medium, negative correlation was identified for NARA-accuracy, r = -.327, n = 20, p = .371, which contributed an additional 2 % of variance in students' scores; as well as, a medium negative correlation for NARA-comprehension, r = -.482, n = 20, p = .037 that also contributed an additional 2 % of variance. The positive correlation between morphological production-word analogy and academic self-esteem also increased, r = .290, n = 20, p = .229, which contributed an extra 2 % of variance in students' scores. However, controlling for year level decreased the strength of some associations between literacy and psychosocial measures. Of note was a reduction in the medium positive correlation between NARA-accuracy and global self-esteem from r = .437 to r = .309. Percentages of variance indicated that the original 19 % of variance calculated using zero order correlations had reduced to 10 % of variance.

Analysis indicated that gender was also an influential factor that affected the strength of associations between the measures of literacy and psychosocial development. Of note was the reduction in the positive correlation between NARA-accuracy and global self-esteem from r = .437 to r = .351, which resulted in a decrease of 7 % of variance, from 19 % to 12 %. The medium, negative correlation between NARA-accuracy and academic self-esteem decreased from r = -.327 to r = -.217, which resulted in a reduction in variance from 11 % to

5 %. Examination the correlational data also indicated that the relationship between NARA-comprehension and several psychosocial measures were affected that included decreases in the strength of correlations for global self-esteem r = .265 to r = .128, academic self-esteem r = -.327 to r = -.217, and resilience r = -.387 to r = -.316. An increase in the strength of the negative correlation between NARA-rate and global self-esteem was identified, from r = -.385 to r = -.582. This indicated that controlling for gender contributed to further negatively affecting the relationship between these two variables, with NARA-rate accounting for a total of 34 % of variance in students' responses on the global self-esteem measure, which was an additional 19 % of variance than that calculated when using zero order correlations.

Table 17. *Pearson Product-Moment Correlations Between Literacy and Psychosocial Measures (Study 2)*

	GSE	ASE	RES	GSEff	GSEff-Aca	GSEff-Soc	GSEff-Emo
Burt	.242	.035	-.144	-.223	-.133	.001	**-.312**
NARA-Acc	**.437**	**-.327**	-.096	-.138	-.128	-.049	-.106
NARA-Comp	.265	**-.463**	**-.387**	-.150	-.070	-.134	-.138
NARA-Rate	**-.385**	**-.558**	**-.402**	**-.310**	**-.369**	.274	**-.409**
MA	-.265	.071	-.160	.083	.090	-.159	.179
MP-MS	.026	.143	.062	.164	.211	.068	.051
MP-WA	-.145	-.252	.090	.259	.167	**.440**	.043

Note. Cohen's (1998) guidelines include large correlations (r = .5 to 1.0), medium correlations (r = .30 to .49), and small correlations (r = .10 to .29). Burt = Burt Reading Test; NARA-Acc = NARA-Accuracy; NARA-Comp = NARA-Comprehension; NARA-Rate = NARA-Rate of Reading; MA = Morphological Awareness-Judgement; MP-MS = Morphological Production-Morpho-Syntactic; MP-WA = Morphological Production-Word Analogy; GSE = Global Self-Esteem; ASE = Academic Self-Esteem; RES = Resilience; GSEff = General Self-Efficacy; GSEff-Aca = General Self-Efficacy-Academic; GSEff-Soc = General Self-Efficacy-Social; GSEff-Emo = General Self-Efficacy-Emotional.

* Boldface indicates medium and large correlations

Table 18. *Partial Correlations Between Literacy and Psychosocial Measures Controlling for Year Level (Study 2)*

	GSE	ASE	RES	GSEff	GSEff-Aca	GSEff-Soc	GSEff-Emo
Burt	.224	.037	-.140	-.223	-.122	-.010	**-.318**
NARA-Acc	**.309**	**-.371**	-.083	-.155	-.067	-.130	-.157
NARA-Comp	.163	**-.482**	**-.394**	-.154	-.027	-.184	-.165
NARA-Rate	**-.458**	**-.559**	**-.399**	**-.310**	**-.359**	.265	**-.417**
MA	-.281	.071	-.161	.083	.090	-.159	.180
MP-MS	-.072	.154	-.077	.172	.255	.041	.039
MP-WA	**-.352**	.290	.122	.292	.249	**.436**	.023

Note. Cohen's (1998) guidelines include large correlations (r = .5 to 1.0), medium correlations (r = .30 to .49), and small correlations (r = .10 to .29). Burt = Burt Reading Test; NARA-Acc = NARA-Accuracy; NARA-Comp = NARA-Comprehension; NARA-Rate = NARA-Rate of Reading; MA = Morphological Awareness-Judgement; MP-MS = Morphological Production-Morpho-Syntactic; MP-WA = Morphological Production-Word Analogy; GSE = Global Self-Esteem; ASE = Academic Self-Esteem; RES = Resilience; GSEff = General Self-Efficacy; GSEff-Aca = General Self-Efficacy-Academic; GSEff-Soc = General Self-Efficacy-Social; GSEff-Emo = General Self-Efficacy-Emotional.

* Boldface indicates medium and large correlations

Table 19. *Partial Correlations Between Literacy and Psychosocial Measures Controlling for Gender (Study 2)*

	GSE	ASE	RES	GSEff	GSEff-Aca	GSEff-Soc	GSEff-Emo
Burt	.146	.184	-.073	-.183	-.106	-.014	-.255
NARA-Acc	**.351**	-.217	-.004	-.085	-.097	-.069	-.016
NARA-Comp	.128	**-.362**	**-.316**	-.091	-.031	-.163	-.040
NARA-Rate	**-.582**	**-.517**	**-.354**	-.276	**-.352**	.269	**-.362**
MA	-.170	-.062	-.259	.035	.061	-.150	.110
MP-MS	-.061	.260	.122	.204	.237	.059	.109
MP-WA	-.065	.186	.033	.213	.147	**.460**	-.016

Note. Cohen's (1998) guidelines include large correlations (r = .5 to 1.0), medium correlations (r = .30 to .49), and small correlations (r = .10 to .29). Burt = Burt Reading Test; NARA-Acc = NARA-Accuracy; NARA-Comp = NARA-Comprehension; NARA-Rate = NARA-Rate of Reading; MA = Morphological Awareness-Judgement; MP-MS = Morphological Production-Morpho-Syntactic; MP-WA = Morphological Production-Word Analogy; GSE = Global Self-Esteem; ASE = Academic Self-Esteem; RES = Resilience; GSEff = General Self-Efficacy; GSEff-Aca = General Self-Efficacy-Academic; GSEff-Soc = General Self-Efficacy-Social; GSEff-Emo = General Self-Efficacy-Emotional.

* Boldface indicates medium and large correlations

Control data were analysed by dividing the Year 4 to 6 students, from the participating school, into three groups that included: the intervention group (Intervention Group, *n = 20)*, the alternate school-led intervention group (Control Group 1, *n* = 10), and the remainder of Year 4 to 6 students (Control Group 2, *n* = 78). As aforementioned, those students that had participated in the previous study were not eligible to be included in the control data. Likewise, those students participating in the final study were also excluded from the analysis (this was enabled due to provision of the control data by the participating school following Study 3). Descriptive statistics are provided in Table 20.

Table 20. *Descriptive Statistics for Analysis of Control Data (Study 2)*

	Pre-Intervention			Post-Intervention		
	n	*M*	*SD*	*n*	*M*	*SD*
Running Record						
Intervention Group	19	8.83	9.9	19	9.55	8.8
Control Group 1	9	7.89	1.72	9	8.56	1.61
Control Group 2	69	11.45	1.79	69	12.35	1.44
STAR						
Intervention Group	13	2.85	1.63	13	3.23	1.59
Control Group 1	5	5.40	2.07	5	4.00	1.87
Control Group 2	57	7.21	1.54	57	6.65	1.48
OTJ-R						
Intervention Group	19	2.16	.83	19	2.68	.89
Control Group 1	9	2.33	1.23	9	2.22	1.30
Control Group 2	69	3.35	.39	67	3.90	.30

As for the previous study, the control data included three sets of measures collected by the school as part of their routine assessment schedule. This data included one standardised measure (STAR) and Running Records as well as an overall teacher judgement in reading (OTJ-R). In order to ensure the reliability of the measures included in the analysis, Pearson product-moment correlation coefficient analysis was performed for the three measures. Analysis identified statistically significant associations between all three measures. In particular, OTJ-R was significantly related to Running Records, $r = .662$, $n = 97$, $p < .001$ and STAR reading, $r = .760$, $n = 79$, $p < .001$. As with the previous study, it was considered that the OTJ-R measure was as reliable as the standardised scores and would be included in subsequent analyses.

For the three measures that comprised the control data, analysis indicated that the Intervention Group demonstrated the lowest mean scores on two of the three measures (STAR, $M = 2.85$; OTJ-R, $M = 2.16$). For the STAR measure, students in the Intervention Group scored, on average, lower than Stanine 3, as opposed to Control Group 2 who scored, on average, above Stanine 7. At post-intervention, the Intervention Group was the only group to make positive gains on the STAR measure, with a mean increase of .38. The control groups both demonstrated decreases to their mean scores, with Control Group 1 demonstrating a decrease of 1.4, and Control Group 2 demonstrating a decrease of .56. For the Running Record measure, the lowest mean score was recorded by Control Group 1 ($M = 7.89$); however, the Intervention Group demonstrated the lowest variability in scores at pre-intervention ($SD = .99$), which further decreased at post-intervention ($SD = .88$). For the OTJ-R measure, the Intervention Group and Control Group 2 made positive gains in their mean scores between the testing periods, with increases of .52 and .55 respectively. In contrast, Control Group 1 demonstrated a decrease to their mean score of .11 at post-intervention.

Mixed between-within subjects analysis of variance were conducted on the Running

Record and OTJ-R measures to determine if mean scores of the groups differed across the two time points of data collection (pre- and post-intervention); as well as, between the performance of the groups over these two time points. Analysis was not performed for the STAR because the Intervention Group was the only group to make gains between testing periods. As for the previous study, the reading levels for the Running Record measures provided by the participating school had been converted into reading ages by the researcher. The analysis identified a significant effect for time, F (1, 94) = 63.557, $p < .001$, $\eta_\rho^2 = .403$; however, no significant interaction was identified between group and time, F (2, 94) = .881, $p = .418$, $\eta_\rho^2 = .018$. The final mixed between-within ANOVA for the OTJ-R measure indicated a significant effect for time, F (1,94) = .7.775, $p = .006$, $\eta_\rho^2 = .076$ as well as an interaction effect for time and group, F (2,94) = .9.828, $p < .001$, $\eta_\rho^2 = .173$.

Discussion

The current study was concerned with the psychosocial and literacy development of students with LLD, in Years 4 to 6. As with the previous study, two purposes underpinned the current study. The first purpose was to determine if change in literacy levels, produced by the targeted intervention was associated with change in psychosocial development. In the current study, the development of specific literacy skills included a focus on metalinguistic skills, primarily focusing on morphological and orthographic awareness. The second purpose was to determine if the literacy development of students could be positively affected, via the targeted intervention and its specific metalinguistic focus.

The data supported the notion that the students in the current study were experiencing literacy learning difficulties. Means scores on the control data indicated that on the standardised STAR measure, students performed on average at Stanine 2, which placed the students within the 5th percentile for reading achievement. This finding also aligned with the

OTJ-R data that indicated teachers rated students as working below the expected national average. Pre-intervention scores on the NARA measure indicated that, on average, students were performing around 6.9 to 7.3 years of age. On the Burt measure, data indicated that at pre-intervention, on average, students were performing around 7.6 to 8 years. As with the previous study, variability was evident within the ranges of these scores. Comparison of the intervention data and school-based data, suggested that students were performing behind their peers in their literacy learning.

Results indicated that the mean scores of all measures of psychosocial development decreased between the two testing points. This suggests that the psychosocial development of students was adversely affected, following the targeted intervention. Significant gains in the mean scores of all the measures of literacy indicated that students' literacy development had improved, over the course of the targeted intervention. Analysis identified associations between the literacy and psychosocial measures; however, these were variable and included positive and negative associations. In particular, self-esteem was differentially associated with measures of literacy development. NARA-accuracy was negatively associated with academic self-esteem but positively correlated with global self-esteem. Academic self-esteem was positively associated with NARA-comprehension. Furthermore, NARA-rate was negatively associated with all measures of psychosocial development, except for social self-efficacy, for which a positive medium association was identified. A positive medium correlation was also identified for social self-efficacy and word analogy. Controlling for gender decreased the positive associations between NARA-accuracy and global self-esteem, as well as, NARA-comprehension and academic self-esteem. The strength of the negative association between NARA-rate and global self-esteem increased when gender was controlled for, as well as, when year level was controlled for. Controlling for year level decreased the positive association between NARA-accuracy and global self-esteem, but

increased the strength of the negative association between NARA-accuracy and academic self-esteem. The negative association between the word analogy measure and global self-esteem also increased when year level was controlled for.

Analysis of the control data that comprised the school-based assessment data for the STAR, Running Records, and overall teacher judgement-reading (OTJ-R) measures, indicated that the Intervention Group made gains, between the testing periods, on the three school-based measures. Interestingly, the Intervention Group was the only group to make gains on the STAR measure, between testing points. The OTJ-R data suggests that teachers judge the students in the Intervention Group as making more overall progress in their reading development, in comparison to the group receiving the alternate intervention; however, interpretation of the control data must be done with caution. Overall, the control data tends to suggest that the students in the Intervention Group were experiencing gains in their literacy development and that these gains were at least comparable to any gains being made by the group receiving the alternate intervention.

Overall, the results of the current study suggest that the targeted intervention positively influenced the literacy development of students with LLD. These findings support the findings from Study 1. In the current study, analysis of the control data suggested that growth had also occurred in students' literacy development within their general classroom environment, as indicated by the significant finding for time for the OTJ-R measure. The results from the current study do not support the premise that the psychosocial development of students with LLD can be positively affected via an intervention that targets literacy skills. This finding is in contrast to the previous study that identified significant change in academic self-esteem, as well as, general and emotional self-efficacy. These findings will be discussed in more detail below.

Psychosocial Development

Results indicated that at post-intervention testing, mean scores on the psychosocial measures decreased, indicating that students' psychosocial development had decreased over the course of the intervention. The decrease in the mean scores for global self-esteem indicates that students overall perceptions of themselves had decreased. This may be related to the intervention in that students evaluated their experiences in a negative manner. According to Badayai and Ismail (2012) fluctuations in self-esteem are reflective of changes within the individual's social environment. This suggests that global self-esteem may have been affected by social factors internal or external to the intervention's context, such as the peers that formed the frame of reference at group-level. The decrease in the mean score for academic self-esteem appears to suggest that during the intervention students placed value on the activities that they participated in, but that their judgements or interpretations of their experiences during the intervention were negative. One reason for the decrease in academic self-esteem may be that participation in the intervention highlighted to students, their difficulties in literacy development. According to Baumeister, Smart, and Boden (1996) students with unrealistically high levels of self-esteem rely on evaluations of their competence from significant others. However, these individuals tend to be more sensitive to actual or perceived criticism from significant others and may respond negatively to evidence that contradicts their own self-evaluations. It could be suggested that while the levels of self-esteem in the group did not appear to be unrealistically high, students' evaluations of their literacy development may have differed to the feedback students received from significant others, thus, resulting in decreases to levels of academic self-esteem.

An alternate explanation is that, for the students within the current study, the decreases in self-esteem may be reflective of changes that Harter (2006) argues are indicative of the development of self-esteem and the changes that occur as students move through

childhood to adolescence. According to Harter (2006) this includes self-evaluations being more reliant on external criteria that includes academic performance, as well as, being related to a greater degree to social comparison processes. While the literacy results indicate significant gains in mean scores for the intervention group, self-esteem may have been influenced by the self-evaluations of the students during the course of the intervention. Many facets of the current intervention were highly visible to students and activities were often performed alongside peers, whom formed the frame of reference. This may have resulted in the students placing more emphasis on their academic performance during the activity, as opposed to the desired outcome, which was to develop decoding, vocabulary, and fluency, primarily via increasing morphological and orthographic awareness. The emphasis on external criteria; that is, academic performance can result in what Trzesniewski et al. (2013) term as contingent self-esteem. According to Trzesniewski et al. (2013) this would mean that students' affect was linked to their successful and unsuccessful experiences within the intervention context as well as how these experiences were interpreted within their social domains. This strong association can result in inconsistencies in self-esteem as well as maladaptive outcomes. This suggests that framing the intervention, the notion of success versus failure, and the role of peers, needs to be carefully considered for some students with LLD.

In the current study, academic self-esteem was negatively associated with all components of the NARA measure. It is interesting to note that the NARA comprises text-based activities and with the exception that of word analogy (which recorded a negative, medium correlation), the correlations between the other literacy measures and academic self-esteem are negligible. This tends to suggest that students placed a high value on text-based reading that would indicate that the judgements students made of their abilities in this area were closely tied to academic self-esteem. Research has indicated that, for some children,

high levels of self-esteem are due to idealistic self-attributes and over-estimations of skills (Robins & Trzesniewski, 2005). Compensatory strategies used by the students, within their general reading instruction class, may also have been less successful within the intervention context. This may be due to the explicit focus on decoding, via a specific strategy combined with the focus on morphological and orthographic awareness as well as the fluency component of the intervention where students read aloud individually. Students were also closely monitored during activities, to facilitate the development of skills, within the intervention. Being able to rely less on compensatory strategies may have made existing literacy learning difficulties more visible to the student and their peers, with subsequent self-evaluations that also involved social comparisons resulting in alterations to existing levels of self-esteem. According to Bong and Skaalvik (2003), self-esteem often requires evaluations of skills and abilities; thus, the exposure of individuals to novel literacy skills, may have contributed to decreases in academic self-esteem.

The feedback that students received from their teacher or peers, within their general classroom context, could have influenced students' perceptions of their ability to use newly developed word-level skills. According to Riddick (2010), the feedback that teachers give students about their learning is linked to children's self-esteem, with negative feedback adversely affecting the development of self-esteem. In the current study, one facet influencing teacher feedback is teacher knowledge. Again this may be reflective of the current education system and its tendency to focus on higher-level skills that include reading comprehension in older students (Shapiro et al., 2014), which means teachers may be less knowledgeable of word-level skills that are primarily focused upon in younger students. This may be especially relevant due to the focus on morphology. According to Bowers (2012) and Moats (2009) there is little evidence in literature that explicit instruction in morphology occurs within classrooms and this is applicable to the New Zealand context. Furthermore, in a

review of research, Moats (2009) noted that the greatest gaps in teacher knowledge were in morphology.

A second facet influencing teacher feedback may be the perceptions that a teacher holds regarding students' LLD and their potential for learning. The role that teacher feedback plays in self-esteem can be extremely influential. According to (Riddick, 2010) this is because students with LLD can perceive negative feedback as containing a higher level of criticism, due to having experienced a history of negative feedback, whose effects cumulate over time to adversely affect the development of self-esteem. A history of negative feedback may also mean that students with LLD are less able to positively adapt during their learning experiences, which may adversely affect the development of resilience in students. In the current study a decrease in the mean score on the resilience measure was evident, which suggests that students were experiencing less than optimal outcomes. Correlational analysis indicated that NARA-comprehension and rate components were associated with decreases in resilience. The negative association between comprehension and resilience may be explained by the fact that in the current study, significant growth was only identified for comprehension in Level 2 of the NARA text. This indicates that students were likely to be experiencing difficulties in responding to comprehension questions contained in more complex texts, even though their accuracy was improving. This might have influenced students' perceptions of their ability to adapt to the task. This supports the conclusion from the previous study that reading comprehension plays an influential role in the academic self-esteem of students participating in the current research.

The decrease in the mean score for the general self-efficacy measure suggests that, overall students viewed themselves as less efficacious in terms of their ability to use their existing skills and abilities to perform specific and concrete tasks within future contexts. Decreases were evident in the mean scores of all three subscales of the self-efficacy measure.

Decreases in academic self-efficacy suggests that students judged themselves as less capable of completing tasks within the academic environment, which raises questions regarding the generalisation of facets of the current intervention to general classroom contexts.

Students were less confident about developing and maintaining relationships with their peers (social self-efficacy). This could be related to the suggestion that the literacy difficulties of students became more visible for students, within the intervention context. However, correlational analyses indicated that positive associations existed between aspects of literacy development and psychosocial development. The positive association between NARA-rate and social self-efficacy, as well as, word analogy and social self-efficacy indicated that improvements in reading rate were linked to increases in the perceptions of students with LLD regarding their social relationships, most likely those within the intervention context. These results suggest that improvements in students' beliefs about their abilities in these areas may be underpinned by social feedback, which according to Reeve and Deci (1996) contributes to the judgements that students make during learning experiences that relate to success. Alternatively, it could be suggested that improvements in students' perceptions regarding their social relationships positively influenced students' perceptions of their ability to read aloud and to transform base forms to morphologically complex forms, even though students may have been less confident of their ability to be successful at the task. This could indicate that increases in social relationships may contribute to developing risk taking in students with LLD, thus contributing to the ability of students to adapt to their LLD.

The visibility of LLD within the intervention may have contributed to the decreases in emotional self-efficacy that were identified in the study. According to Pajares (1996) emotional states are influential in the judgements that individuals make that contribute to their self-efficacy. Students with lower self-efficacy can interpret their emotional responses to tasks negatively, whereas, students with higher levels of self-efficacy view their emotional

responses more positively (van Dinther, Dochy, & Segers, 2011). In the current study, emotional self-efficacy was moderately and negatively associated to the Burt and NARA-rate measures. These findings suggest that single word reading accuracy and reading aloud may have resulted in heightened levels of emotional responses that in the current study were negatively perceived by the students with LLD. The emotional self-efficacy of the students and their perceptions of their peers' negative responses may be an influential factor in the development of psychosocial development in students.

Changes to the number of sessions within the intervention from 24 in the previous study to 39 sessions in the current study as well as the composition of the intervention, could be suggested as variables that adversely influenced psychosocial development in the current study. However, this is difficult to determine. Literature that relates to the effectiveness of interventions has focused on either literacy or psychosocial development. A meta-analysis of social, emotional, and behavioural programmes/interventions by Sklad, Diekstra, de Ritter, Ben, and Gravesteijn (2012), found that interventions/programmes of less than 20 sessions were more effective than interventions comprising more than 20 sessions; however, statistical significance was found for both durations. That said, the duration of the interventions/programmes were categorised as either less than one year or more than one year, with interventions/programmes of less than one year being more effective of the two categories. Thus, it is difficult to draw conclusions from this meta-analysis in relation to the current study. Morphological awareness interventions have been found to be more effective if their duration is between 10-20 hours, or over 20 hours (Goodwin & Ahn, 2010). Goodwin and Ahn (2010) also found that morphological awareness interventions extended beyond morphology to influence the development of other literacy skills, which included reading comprehension, phonological awareness, and vocabulary. This finding supports the extension of the intervention for the current study for literacy development, which comprised

approximately 19.5 hours.

Literacy Development

Significantly gains were identified for all literacy measures. This included significant differences for the NARA-rate and morpho-syntactic measure, for which no significant differences had been found in the previous study. The result for the morpho-syntactic measure could be attributed to the adjustments made to the measure following the previous study. One factor contributing to improvements for the NARA-rate measure may be the change in the intervention focus from syllabification to morphological and orthographic awareness. Increasing students' skill level in these areas included fostering students with the ability to decode words using morphological units. This negated the ambiguity that occurred when words were decoded at the graphophonemic level, which had been observed in Study 1. Instruction was also aimed at increasing students' orthographic awareness skills, which may have also increased students' ability to read the morphological units in words accurately, thus contributing to an increase in their reading rate.

Psychosocial Development and Literacy Development

Results indicate that while correlations were identified between measures of literacy and psychosocial development, these were variable and included both positive and negative associations. As with Study 1, the findings appear to contrast with findings in the literature regarding the association between self-esteem (especially academic self-esteem) and academic achievement (Byrne, 1984; Chapman, 1988; Guay et al., 2010; Hettinger, 1982; Tunmer & Chapman, 2003) and the positive influence that specialised literacy support has on academic self-esteem (Elbaum & Vaughn, 1999). The current study found that all the components of the NARA measure were negatively associated with academic self-esteem. It could be suggested that the academic self-evaluation of the students may be associated with

perceptions of competence on text based reading. This suggests that the intervention did not have a positive influence on academic self-esteem; however, this negative association could be reflective of the decrease in self-esteem that is argued to occur as domains become more differentiated. It was interesting to note the positive association between NARA-accuracy and global self-esteem. This suggests that the overall judgements that children were making about themselves were associated with their ability to read text accurately, which would suggest that some students placed a large emphasis on text reading in terms of their self-worth. Overall, it appears that students' viewed the ability to read words accurately within a text context, as an important variable influencing their overall evaluation of their literacy ability.

Self-esteem's differential association with literacy skills may indicate that students were operating with different levels of self-esteem. This means that some students may have entered the intervention with less differentiation at the sub-domain level than other students. Controlling for year level increased the negative association between NARA-rate and global self-esteem. This indicates that the association between these two variables is stronger, when compared to initial correlations. This is suggestive that NARA-rate is an influential variable in how students view themselves overall; however, this finding may also be related to differences at sub-domain level as a result of developmental differences. This also appears to be applicable for the negative association between word analogy and global self-esteem, whose negative association increased when year level was controlled. Controlling for year level also increased the strength of the negative association between NARA-accuracy and academic self-esteem. This indicates that students' perceptions of their ability to read text accurately did not increase as their skill level increased; however, the association between these two variables indicates that students did view accuracy as an important component in academic self-esteem. It could be suggested that the judgements that students were making

about their individual skill level did not facilitate growth in academic self-esteem. Additional analyses on the correlations between psychosocial development and literacy skills need to be performed and will be discussed in Chapter 6.

The significant growth in students' rate of reading was negatively correlated in all areas of psychosocial development, with the exception of social self-efficacy. This indicated that students' confidence, in terms of their interpersonal relationships, increased as their capacity to read texts faster increased. As with reading accuracy, reading aloud was also a visible component of the intervention, so it is difficult to determine why particular facets of literacy, which were visible, had varied associations with psychosocial development. The medium positive correlation between social self-efficacy and word analogy also suggests that students' confidence in their interpersonal relationships increased as their analogy skills increased. Vicarious learning may have been an influential factor in the development of social self-efficacy in students. It is likely that vicarious learning superseded the role of mastery experiences due to the fact that students were learning novel skills; as such, their previous experiences of success in learning tasks that contributes to mastery were likely to be minimal. Research indicates that individuals tend to use models that are engaged in the same or similar tasks as referents (Bandura, 1997; Braaksma et al., 2002). This suggests that during activities students had a range of peers to select from to use as a referent for their learning. Furthermore, the greater alignment between the individual and the model have been found to be of a greater influence to self-efficacy beliefs (Bandura, 1997; Braaksma et al., 2002). It could be suggested that the alignment between the student and the referent model contributed to increases students' perceptions of their ability to develop interpersonal relationships with peers.

Gender appeared to have some influence on the associations between psychosocial development and literacy skill development. Controlling for gender decreased the positive

association between NARA-accuracy and global self-esteem, as well as, decreasing the negative association between NARA-comprehension and academic self-esteem. The strength of the negative association between NARA-rate and global self-esteem increased when gender was controlled for and when year level was controlled for. This may indicate that individuals entered the intervention with different levels of self-esteem, depending on whether they were male or female. This is considered further in Chapter 6.

Limitations and Considerations

Limitations of the Administration of Measures

NARA.

The administration procedure for the NARA measure followed the procedure established by Neale (1999). One element of this procedure included students only being posed the comprehension questions for a given level, if their rate of errors fell below a prescribed number during the oral reading of the text. The error rate cut-off included 16 errors for Level 1 to 5 and 20 errors for Level 6. According to Neale (1999) testing should be stopped if the error rate is exceeded because a ceiling effect has been reached for all three elements; accuracy, comprehension, and rate, contained within the NARA measure. However, observations during task administration indicated that while students reached the cut-off score for errors many students did not exceed the error cut-off prior to the end of the text (it is noted that in the current study accuracy, comprehension, and rate of reading were calculated at the 16 or 20 error point cut-off). This raised the question as to whether testing should be ceased if the error cut-off point is reached but not exceeded and whether students should be posed the accompanying comprehension questions. The question emerged as to whether a higher rate of errors was related to a decreased ability to correctly answer

comprehension questions, as advocated by Neale (1999), or whether the error cut-off provided within the administration guidelines was arbitrary in nature.

In the NARA, the error cut-off rate was also the deciding factor as to whether students progressed in the task. Ambiguity existed within the administration manual for the NARA regarding this matter. According to the standard procedure, testing should be ceased if the aforementioned error cut-off scores are exceeded as well as when the student's error rate is around 12 errors for Levels 1 to 5 (Neale, 1999). It can be suggested that these guidelines regarding the error rate creates ambiguity regarding the cessation of testing because a 25 % differential exists between the minimum and maximum error rates for Levels 1 to 5. The question arises as to whether differences in cut-off error rates which affect the cessation of testing are an influential factor in determining whether students' reading skills are being accurately measured, or whether development in reading between testing periods is being identified.

Another component of the administration procedure for the NARA measure is the role of prompts during students' oral reading. Prompting involved student errors being corrected by the researcher up to the cut-off error level. The prompts occur for inaccurately decoded words or incorrect phonetically decoded words as well as refusals or hesitations in word reading attempts (Neale, 1999). According to Neale (1999) prompting should not intrude on student's fluency but should be enacted in a timely manner in order for comprehension to be maintained. Observations during Study 2 indicated that prompting students resulted in different levels of support for student. This is because the prompting of errors differed for students, with some students being prompted on higher frequency words and other students being prompted on morphologically complex or content words. It could be suggested that prompting may have inadvertently benefited the comprehension responses for those students for whom morphologically complex words or content were prompted.

Psychosocial questionnaire.

In the current study the psychosocial questionnaire was primarily administered, in small group format using the established intervention reading groups. Observations during the administration of this measure indicated that some students were uncomfortable completing this activity with other students present. It was also observed that even though students were advised otherwise; some students shared their responses on some items with their peers. It could be suggested that administering this task in a group format influenced students' responses to questions within the psychosocial questionnaire, with the inclusion of peers resulting in socially desirable answers. This notion may be supported by the analyses of the psychosocial data for the current study that identified large variation in the scores of the psychosocial measures between testing periods.

Limitations of the Content of Measures

Morphological measures.

For the morphological production: morpho-syntactic task, students were required to transform a base word to produce an affixed word, within a sentence context. The adaptation of the measure for the current study through the inclusion of transparent and opaque derivational forms indicated that a range of scores was achievable and that the measure was complex enough to measure changes in students' morphological knowledge. In the current study, there was evidence that variability existed in terms of acceptable student responses for specific items within the morpho-syntactic measure. This affected two items in the measure that contained the base words, examine and combine. For these items, some students provided alternate responses that were morphologically and syntactically correct, but were not the pre-determined targeted responses. Furthermore, the alternatives provided by students for the two items altered the transformational properties underpinning these items. To

illustrate, students' responses to the base word examine (targeted transformational form: examination) included exam and exams and for the target word combine (targeted transformational form: combination) included combo and combos. These variations altered the target response from derivational to inflectional; as well as, altering the nature of the task from a production task to a decomposition task. This suggests that alternate responses affected the validity of these two items within the morpho-syntactic measure.

Limitation to the Timing of the Intervention

External factors within the school environment may be posited as explaining students' responses to the psychosocial measures within the study. The current study was undertaken early in the first term of the school year. It was observed that that the majority of students had undertaken transitions at the beginning of the year that included moving from middle to senior school (Year 4 students), as well as, experiencing teachers new to the senior school. According to Lackaye and Margalit (2006) transitions extend beyond the physical environment to include factors relating to teacher support and the student's ability to function on an interpersonal level. Lackaye and Margalit (2006) contend that transitions are underpinned by feelings of competence that can positively or negatively influence psychosocial adjustment. It could be suggested that students' judgements of their competence within their general classroom environment may have influenced their responses on the psychosocial measures. In contrast, Study 1 was undertaken during the final year of the school term, following three terms of school.

Conclusions and Future Directions

The results from this study did not support the notion that psychosocial development can be positively affected via an academic intervention that aimed to develop specific literacy skills in students with LLD. These findings contrast the findings from Study 1, which had

identified some significant gains, following the intervention. Findings from the current study support the premise that a targeted literacy intervention can positively affect literacy development in students with LLD. Furthermore, significant gains occurred in all literacy measures, which indicated that changes to the measures for the current study, enabled growth in literacy to be measured. However, evidence did suggest that associations existed between psychosocial and literacy measures, although these correlations were variable and included negative and positive associations. The current study enabled the battery of assessment measures to be further developed and refined; however, the aforementioned limitations to the administration of the NARA measure and the psychosocial questionnaire need to be addressed, to ensure that growth in literacy skills is accurately captured, and that psychosocial responses are accurate reflections of students' psychosocial development. Changes to the content of the morpho-syntactic measure need to occur in order to reduce the variability of responses for two items within this measure. Overall, these findings suggest that relationships exist between the development of literacy skills and psychosocial development; however, additional research is required to explore these variables in depth.

Chapter 5

Study 3-A Specific Literacy Intervention Targeting the Psychosocial and Literacy Development of Students with Literacy Learning Difficulties in Year 4 to Year 6

Introduction

The previous two studies focused on examining the effectiveness of a targeted intervention on the psychosocial and literacy development of students with literacy learning difficulties (LLD), in Years 4 to 6. In Study 1, the focus was on teaching general literacy skills that followed a decoding, vocabulary, and fluency format, while in Study 2, the focus moved to metalinguistic development that included explicit instruction in morphological and orthographic awareness. Results indicated that the students with LLD made significant gains in their literacy development between testing periods. The results from Study 1 indicated significant gains in academic self-esteem, as well as, general and emotional self-efficacy. In contrast, the results for Study 2 identified decreases in the mean scores for all measures of psychosocial development between testing periods. Correlational analyses identified associations between literacy and psychosocial development; however, these associations varied between measures, as well as, demonstrating both positive and negative correlations. The variability in the previous studies findings suggests that carrying out a third study is important in order to further develop an understanding of the influence of a targeted intervention on the psychosocial development of students with LLD.

There are also other indicators as to why a third study is advantageous. Firstly, the change from general (Study 1) to specific literacy skills (Study 2) suggests that a third study would contribute to determining if instruction in general literacy skills or specific literacy

skills is more efficacious to the literacy development of students with LLD. The decision to focus on metalinguistic skills in Study 3 is underpinned by the literature presented in Chapter 4 as well as scores from Study 2 that demonstrated significant gains in all measures of literacy development. Secondly, the length of the two previous interventions differed, from 24 sessions in Study 1, to 39 sessions in Study 2. Differences in duration, along with differential focus suggest that the two studies comprised relatively different interventions. Carrying out a third study that replicated Study 2, which includes a novel cohort of students would increase the robustness of the findings from Study 2. Lastly, limitations to the literacy and psychosocial measures identified in Study 1 had resulted in changes to the content and administration of measures for Study 2. Findings from an additional study will provide an opportunity to review the reliability of findings as well as the validity of the measures contained within the research project.

Moving towards Study 3, the findings identified at the conclusion of Study 2 were considered in terms of the literacy intervention. This included the highlighted associations between literacy and psychosocial development from Study 2 that suggested the ability of students to read text accuracy was influential in the development of self-esteem and that social self-efficacy was associated with gains in reading aloud and word analogy. Thought was also given to how the emotional responses of students may contribute to framing their learning, especially in relation to single word reading accuracy and reading aloud. Results suggested that the content of the intervention may have generalised somewhat to students' general classroom context, but continued consideration needs to be given to providing multiple opportunities for students to develop skills and as such increase the transferable nature of the learning within the intervention to general classroom contexts.

Development of Measures for Assessment

Limitations identified in Study 2 resulted in changes being made to specific assessment measures for Study 3. No limitations were identified for the measures used for the control data, which were described in Chapter 3 (p. 111). This section provides a rationale outlining any adaptations to the measures that includes content and/or administration changes. The framework for the assessment measures for Study 3 is provided in Table 21.

Table 21. *An Index of Measures Contained in the Assessment Battery (Study 3)*

Literacy Development	Test
Accuracy	Single word reading – Context free
	In-text word reading – Context influenced
Comprehension	Reading Passage (oral, text levelled) and comprehension questions
Rate	Reading Passage (text levelled)
Morphology	Morphological Awareness-Judgement
	Morphological Production-Morpho-Syntactic
	Morphological Production- Word Analogy
Psychosocial Development	**Scale/Subscale**
Global Self-Esteem	Rosenberg Self-Esteem Scale
Academic Self-Esteem	Self-Perception Profile for Children-Scholastic Competence subscale
Resilience	Sense of Coherence-Orientation to Life Questionnaire-Manageability subscale
General Self-Efficacy	Self-Efficacy Questionnaire for Children
Academic Self-Efficacy	
Social Self-Efficacy	
Emotional Self-Efficacy	

Adaptations to the Content of the Literacy Measures.

Morphological Production-Morpho-Syntactic Test.

For the morpho-syntactic measure, students were required to transform a base word to create a derived form, within a sentence context. Responses from Study 2 indicated that for two items, with the base word examine and combine, students provided alternate but acceptable answers. While the alternate answers to the two items were syntactically and morphologically acceptable (exam/s and combo/s), the answers resulted in changes in the targeted form from derivational to inflectional and from derivational to informal. The decision was made to adapt the two items for the current study. The measure yielded a Cronbach's alpha of .69. The replacement items are provided below and the revised measure is provided in Appendix 6.

Explode: The firefighters worked hard to put out the fire caused by the ... (Correct response: explosion; Derivational with phonological and orthographic shift).

Define: The boy looked in the dictionary for the word's ... (Correct response: definition; Derivational with phonological and orthographic shift).

Adaptations to the Administration of Literacy Measures.

NARA.

Observations from Study 2 indicated that ambiguity existed regarding the standard procedure contained within NARA's published manual, for the administration of comprehension questions; as well as, the criteria guiding the cessation of testing for the NARA measure. These ambiguities meant inconsistencies could arise in both the collection of the comprehension data and the cessation of testing, which may have influenced the determination of students' level of reading skill on the NARA measure. In the current study,

the administration procedure of the NARA was adapted to improve the consistency of the data collection. An absolute cut-off rate of 16 errors was enacted for Levels 1 to 5 of the NARA measure. This meant that students who scored 16 or more errors in an oral reading, on one text level, would not proceed to the next text level. This adaptation reduced the uncertainties that related to the 12 to 16 error cut-off score that had been identified as a limitation in Study 2.

A limitation of the previous study concerned whether the ability of students to respond to comprehension questions was related to their accuracy ability, which was due to an element within the standard procedure that prohibited students being posed comprehension questions if they had exceeded the prescribed error cut-off scores. In the current study, the procedure was adapted and students were asked the comprehension questions for the text level, regardless of the number of errors made during the oral reading. It was viewed that this would enable a more accurate measure of students' comprehension skills to be obtained, which was independent on their word reading accuracy in the oral reading.

The final limitation of the NARA concerned the prompting of errors during the accuracy phase that may have provided different levels of support to students when completing the comprehension component of the measure. In the current study, the prompting component of the procedure was replaced with a generic statement for students, 'keep going'. It was viewed that the removal of the prompt component increased the consistency of administration for all students because the generic statement did not unduly interrupt the reading accuracy component or provide vocabulary support for students within the comprehension component.

An Adaptation to the Administration of Psychosocial Measures

In the previous study, the psychosocial questionnaire was administered in small group format, comprising two to four students. Observations during the administration of the questionnaire indicated that some students were uncomfortable responding to questions in the presence of their peers, which may have resulted in socially desirable responses. In the current study, the psychosocial questionnaire was administered to students individually; thus, decreasing the likelihood of socially desirable responses.

Research Questions

The aim of the current study was to examine the effectiveness of a targeted intervention on the psychosocial development of students with LLD. As with the previous study, the current study was concerned with whether targeting specific literacy skills that focused on the development of metalinguistic skills would affect the psychosocial development of the students with LLD. The study also aimed to determine whether the targeted intervention would improve the literacy skills of the students. The following research questions were identified:

1. Does a targeted intervention, which includes instruction in *specific* literacy skills, promote psychosocial development?
2. Does a targeted intervention that includes instruction in *specific* literacy skills improve the literacy development of students with LLD?
3. Is change in the literacy development of students with LLD associated with change in psychosocial development?

Method

Participants

The study involved 19 students from Year 4 to 6 who attended the same contributing state primary school as the participants from the previous two studies. Eligibility for inclusion into the current study involved two components. First, the Deputy Principal of the participating school determined students eligible for inclusion. In the current study, students were required to be identified as making low progress in their literacy development, for the duration of their education at the participating school. Student were also required to be performing on the STAR reading test at or below Stanine 4 (Elley, 2001) as well as performing at or below Level 2P on e-asTTle assessments (Ministry of Education, 2015a). The STAR and e-asTTle tests are standardised educational measures used by the participating school as part of their annual assessment battery. Students were not eligible for inclusion into the intervention group if they were currently receiving any individualised support for their literacy development within the school context, or if they had been involved in the intervention groups of the previous studies.

Three students left the participating school prior to the end of the study; therefore, the final sample consisted of 16 students (6 male and 10 female) who ranged from 8 years 3 months to 11 years of age. The sample included two students from Year 6 (1 male, 1 female), seven students from Year 5 (3 male, 4 female), and seven students from Year 4 (2 male, 5 female). Five students in the final sample were identified by the school as meeting the criteria for Ministry of Education funding as English Speakers of Other Languages (ESOL). During the intervention, it was found that one Year 4 student in the intervention group was participating in the school-led intervention, which was confirmed by the classroom teacher. It was decided to have the student complete the intervention due to the fact that the student had completed numerous sessions. Parents and caregivers of the 16 students provided written

informed consent for their child's participation in the study. All students provided personal assent to participating in the study, prior to the collection of pre-intervention data.

Two control groups were utilised in the study. The control groups comprised the remaining students in Years 4 to 6 of the participating school (n = 88). The first control group (Control Group 1; n = 10) included students participating in an alternate intervention for their literacy development within the school setting. The second control group (Control Group 2; n = 78) included the remaining students from Years 4 to 6, who had been identified by the Deputy Principal as progressing in their reading development at the expected, or above the expected, rate set by the school in accordance to National Standards. Students were not eligible for inclusion into Control Group 2 if they had been involved in the intervention group for Study 1 or Study 2. The school principal provided consent for the collection of control data. All students in Years 4 to 6 provided personal assent prior to the collection of control data. Demographic information is presented in Table 22.

Table 22. *Demographic Information for Participants (Study 3)*

	Intervention Group	Control Group 1	Control Group 2	Difference	Effect Size
Age					
M (SD)	9.36 (0.84)	9.17 (0.77)	9.64 (0.81)		
Range	8: 83 – 11: 0	8: 25 – 10: 92	8: 42 – 11: 17	$p = .145$	$\eta^2 = .04$
Gender					
Female	62.5% *(n = 10)*	50.0% *(n = 5)*	57.7% *(n = 45)*		
Male	37.5% *(n = 6)*	50.0% *(n = 5)*	42.3% *(n = 33)*		*Cramer's V*
Total	100% *(n = 16)*	100% *(n = 10)*	100% *(n = 78)*	$p = .821$	= .062
Year Level					
Year 4	43.8% *(n = 7)*	60.0% *(n = 6)*	41.0% *(n = 32)*		
Year 5	43.8% *(n = 7)*	30.0% *(n = 3)*	29.5% *(n = 23)*		
Year 6	12.5% *(n = 2)*	10.0% *(n = 1)*	29.5% *(n = 23)*		*Cramer's V*
Total	100% *(n = 16)*	100% *(n = 10)*	100% *(n =78)*	$p = .389$	= .141

Note. Age = age in months/12.

General Procedure

A pre- and post-intervention assessment research design was adopted in the study, which was conducted during the last two terms of the 2014 school year. The researcher carried out pre-intervention assessment over a five-day period during the third school term. As for the previous study, the literacy measures were administered to students individually. For the current study, the psychosocial measures were administered individually in the same questionnaire format used in the previous study. The measures were administered in three parts. The first part included the Burt and the morphological measures, which were orally

administered to students in the pre-determined order used in Study 2. The second part included the administration of the NARA measure and the final part comprised the psychosocial questionnaire. Students were not provided with feedback on any of the items contained in the measures.

Assessment measures were administered in the researcher's teaching office, during classroom hours. A single testing condition was put into place in order to minimise student fatigue. This included a minimum of two teaching blocks between each assessment component. The Burt was administered according to its respective published guidelines. The procedures were maintained from the previous studies for the administration of the morphology measures and the psychosocial questionnaire. The NARA was administered using the published guidelines; however, the aforementioned adaptations were enacted that related to the cessation point for the test, the posing of the comprehension questions, and prompting.

The intervention consisted of 39 sessions. Each session lasted for approximately 30 minutes and students attended a maximum of four sessions a week, over a 12-week period. The development of student groups occurred in consultation with classroom teachers, with students being primarily grouped according to year level and classroom placement. Where possible, groups were consistent throughout the length of the intervention; however, as with the previous studies, fluidity in-group composition was retained in order to meet the needs of the teachers and students. Students attended an average of 33 sessions, with a minimum of 19 sessions and a maximum of 38 sessions. Post-intervention assessment, which mirrored pre-intervention assessment, was carried out towards the end of the final school term, over a six-day period, with the extra day being required due to student absences.

Reliability

As for the previous studies, inter-rater reliability was not carried out for the current study. The scoring of the literacy and psychosocial measures for the study had been refined to increase clarity and decrease ambiguity. The adaptations made to the aforementioned items within the morpho-syntactic measure were effective in decreasing the ambiguity identified within the limitations of the previous study. However, in the current study, two other items (Item 15, Item 17) within the morpho-syntactic measure resulted in alternate answers being presented. It was unclear why this ambiguity arose, especially given these items inclusion in the previous studies, where no acceptable alternatives provided by students. This issue was resolved following consultation with the researcher's supervisor that involved a discussion regarding the morphological and syntactic principles underpinning the transformations provided by the student.

Reliability checks were carried out for the current study. For the literacy measures, high internal consistency was found for the Burt (Cronbach's $\alpha = .97$), as well as, the NARA measure that included accuracy (Cronbach's $\alpha = .88$), comprehension (Cronbach's $\alpha = .80$), and the rate (Cronbach's $\alpha = .98$). Low internal consistency was identified for the morphological awareness-judgement measure (Cronbach's $\alpha = .29$) and the word analogy measure (Cronbach's $\alpha = .23$). For the psychosocial measures, adequate internal consistency was identified for the global self-esteem measure (Cronbach's $\alpha = .73$). For academic self-esteem, low internal consistency was found (Cronbach's $\alpha = .41$). For resilience, high internal consistency was found (Cronbach's $\alpha = .84$). For general self-efficacy, high internal consistency for the full scale (Cronbach's $\alpha = .90$) and academic (Cronbach's $\alpha = .84$) and emotional subscales (Cronbach's $\alpha = .82$) were found but low internal consistency was found for the social subscale (Cronbach's $\alpha = .45$). Although the alpha scores for academic self-esteem and social self-efficacy were both low, the alpha scores for the previous studies were

above .8, which is consistent with published data on reliability for academic self-esteem (Harter, 2012b) and social self-efficacy (Muris, 2001). This suggest that these values in Study 3 may not be an accurate assessment of the reliability of these specific scales and may be more to do with chance variability in any measure, including reliability estimates. Given that no errors in the data were identified, the data will be analysed following the same procedures from the previous studies, and assuming validity of the scale. Additional information regarding reliability checks can be found in Study 1, presented in Chapter 3 (p. 127).

Intervention

Session Structure

The current study followed the format adopted for the previous study. This included a teaching and learning format that aimed to develop students' metalinguistic skills via an explicit focus on phonological, morphological, and orthographic awareness. As for the previous study, the focus of the phonological awareness was to develop students' knowledge of vowel and consonant sounds, as well as, basic syllable structure that facilitated the flexing of accents during decoding. The development of students' morphological and orthographic awareness was via explicit instruction in morphological and orthographic units, as well as, via explicit instruction in a strategy to read longer words, adapted from Moats (2010). This strategy is provided within the decoding component in Table 23. Specific elements of orthography and morphology were systematically introduced to students during teaching and learning sequences that were identified from literature, as well as, from observations during teaching and learning sequences. This ensured that teaching objectives were based on student needs, which were carefully reviewed to ensure that learning objectives would provide the most support to students in developing their literacy abilities. More information regarding the focus of instruction can be found on Page 179. Students were provided with daily independent practice in reading single words. As for the previous study, the fluency

component of Seven*Plus* (Marriott, 2013) was retained in the current study, within the jungle reading format, which had been devised to increase and maintain student engagement during text reading. The session format is provided in Table 23.

Intervention Text

For Study 3, StoryBytes, published by Sharp Reading were used. For the current study, easy and medium StoryBytes were selected. Easy-levelled StoryBytes were used to teach students the session format. Medium-levelled StoryBytes were used for the remainder of the study. Further information regarding the intervention texts can be found in Chapter 3 (p. 129).

Table 23. *General Format of Intervention Sessions (Study 3)*

Key Component	Structure
Decoding	Students: Guided and independent practice in reading longer words (adapted from Moats, 2010):
	Placing a line underneath each vowel grapheme
	Drawing a box around any known morphological features
	Drawing a circle around known orthographic features
	Blending word together using knowledge of syllables. Blend from left to right. Flexing the accent for correct sound
	Discussion of word meaning or word class focusing on morphological knowledge
Orthography	Students develop knowledge of targeted orthographic rules through a variety of activities
Morphology	Students develop knowledge of targeted morphological units through a variety of activities
	Seven*Plus* (Marriott, 2013): Jungle Reading
Attack Phase	Words selected from focus text that are potentially unknown by students
	Students and teacher discuss selected words and apply strategy for reading longer words
	Discussion of meanings of selected words from the decoding component, using and further developing students' morphological knowledge.
Pursue Phase	Teacher reads a section of the text to students. All students listen, following the text using their text cards
Jungle Phase	Teacher and students re-read section of the text as a group.
King or Queen of the Jungle Phase.	Students, individually, take turns to re-read sentences or sections of the text out loud. Remaining students follow, reading silently using their text cards.
	Brief discussion of text using comprehension questions posed that focus on reinforcing vocabulary to facilitate comprehension

Results

The current study involved three research questions. In order to answer these questions, the following analyses were carried out using SPSS (Version 22).

1. Descriptive statistics were performed for the literacy and psychosocial measures to determine the levels of development that students presented at pre- and post-intervention.

2. Paired samples *t*-tests were carried out and examined to determine the difference between mean scores at pre- and post-intervention for the literacy and psychosocial measures.

3. Correlations were calculated and examined to determine if associations existed between the literacy and psychosocial measures.

4. Partial correlations were performed and examined to explore whether age and year level, respectively, influenced the relationship between the literacy and psychosocial measures.

5. Correlations and mixed between-within analysis of variance (ANOVA) were carried out to determine if differences existed within and between the performance of intervention and control groups, on school-based assessments.

Descriptive statistics for the intervention group at pre- and post-intervention testing are presented in Table 24.

Table 24. *Pre- and Post-Intervention Scores for the Intervention Group (n = 16) for All Measures Contained in the Assessment Battery (Study 3)*

	Pre-test			Post-test		
Test (maximum obtainable score)	*M*	*SD*	Range	*M*	*SD*	Range
Literacy Development						
Burt (110)	58.31	14.08	34 - 85	68.75	15.28	41 - 96
NARA-Accuracy (100)	45.88	16.62	21 - 87	55.25	17.29	26 - 87
NARA-Comprehension (44)	13.00	4.59	6 - 23	20.38	7.32	5 - 34
NARA-Rate of Reading (Words read/Total time x 60)	53.54	16.56	21.37 - 89.54	57.23	18.82	21.83 - 95.28
Morphological Awareness-Judgement (20)	14.06	4.22	6 - 18	17.25	2.02	12 -20
Morphological Production-Morpho-Syntactic (20)	12.81	3.17	5 - 16	15.56	1.90	12-18
Morphological Production-Word Analogy (20)	10.44	2.71	6 - 14	13.75	3.00	8 -18
Psychosocial Development						
Rosenberg Self-Esteem Scale (40)	29.88	3.58	26 - 37	30.19	3.56	25 - 36
Academic Self-Esteem (24)	15.44	2.03	12 - 20	16.06	2.23	12 - 20
Resilience (70)	47.31	10.55	35 - 67	49.31	7.82	36 - 62
General Self-Efficacy-Academic (48)	31.63	6.61	18 - 42	32.19	6.59	19 - 43
General Self-Efficacy-Social (48)	32.25	5.32	25 - 42	34.50	4.63	28- 43
General Self-Efficacy-Emotional (48)	32.63	7.89	17 - 43	36.13	6.41	21 - 48
General Self-Efficacy-Total (144)	96.50	17.84	61 - 122	102.81	15.24	72 - 134

Analysis found wide variability for the two tests measuring reading accuracy (Burt and NARA-accuracy). The mean score for the Burt was 58.31 out of a maximum total score of 110 (53 %). In comparison, the mean score for NARA-accuracy was 45.88 out of a possible total score of 100 (46 %). Performance on both measures increased at post-intervention; however, the greater gains were found for the Burt with a mean score of 68.75 (62.5 %) with increases both ends of the range of scores. The NARA-accuracy, with a mean score of 55.25 (55%) demonstrated no change in the maximum score; however, gains were identified at the lower end of the range.

For NARA-comprehension, an overall mean score of 13 was calculated, out of a maximum score of 44, at pre-intervention. Analysis identified wide variability in the scores at pre-intervention, with a minimum score of 6 and a maximum score of 23. This variability increased at post-intervention testing, mostly due to an increase in the upper range, from a maximum score of 23 to 34. At post-intervention, the mean score of 20.38 for NARA-comprehension indicated that students were able to answer 46 % of questions correctly. Wide variability was also identified at pre- and post-intervention testing for the NARA-rate component. At pre-intervention, the mean score for NARA-rate was 53.54 (words per minute); however, students at the upper range read four times faster than students at the lower range, with a minimum score of 21.37 and a maximum score of 89.54. Post-intervention analysis identified a slight increase in the minimum score (21.83); however, larger gains of nearly 6 words per minute were identified in the upper range. This indicated that the gap between students was increasing, with students at the maximum range reading five times as many words per minute as students at the minimum range.

For the three measures of morphology, results indicated that students performed better on the morphological awareness-judgement task, at pre- and post-intervention, with mean scores of 14.06 and 17.25, respectively. The range of scores for this measure demonstrated

significant growth, with the minimum score increasing from 6 to 12 between testing periods. Thus, all students at post-intervention scored above the 50th percentile. A ceiling effect was reached at post-intervention for the judgement task with a maximum score of 20. Similar growth was identified for the morphological production-morpho-syntactic task. At pre-intervention, a minimum score of 5 was calculated, which increased to 12 at post-intervention, again indicating that all students scored above the 50th percentile. The greatest gain in mean scores was identified for the word analogy measure, with an increase of 3.31 between testing periods, in comparison to increases of 3.19 and 2.75 for the judgement and morpho-syntactic tasks, respectively.

For the two measures of self-esteem, students indicated higher levels of global self-esteem with a mean score, at pre-intervention, of 29.88 out of a possible 40. Only a slight increase was found in the mean score of this measure (30.19) at post-intervention. Similarly, for academic self-esteem, a small increase was identified between testing periods in the mean score, from 15.44 to 16.06. For the resilience measure, the wide variability of scores identified at pre-intervention (range 35-67) decreased at post-intervention (range 36-62) that was attributed to a decrease in the maximum score at post-intervention.

For the three subscales contained within the general self-efficacy measure, the highest mean score at pre-intervention was found for the emotional subscale (M = 32.63), followed by social (M = 32.25) and academic self-efficacy (M = 31.63). Emotional self-efficacy demonstrated the widest variability of the range of scores, with scores of 17 to 43 (pre-intervention) and 21 to 48 (post-intervention). The maximum score of 48 indicated that a ceiling score had been reached for this subscale. Increases in the mean score were identified for all three subscales post-intervention. The raw scores for the three subscales were combined to provide a full-scale score for the general self-efficacy measure. The mean score of 96.50 at pre-intervention, increased to 102.81 post-intervention. Increases in the minimum

and maximum scores were evident between testing periods, with an increase in the minimum score from 61 to 72 and in the maximum score of 122 to 134.

The first aim of the study was to determine if the literacy development of students with LLD had increased over the course of the targeted intervention. As for the previous studies, in order to address this aim, paired sample *t*-tests were conducted to determine if differences existed in performance of students at pre- and post-intervention testing. Eta squared statistics were performed to determine the effect size for the paired sample *t*-tests, using guidelines that included: small (.01), medium (.06), and large (.14) (Cohen, 1988).

Results indicated significant differences in students' performances on the Burt, t (15) = -8.644, $p < .001$, $\eta^2 = .83$ and NARA-accuracy, t (15) = -3.334, $p = .005$, $\eta^2 = .43$. Analysis identified significant differences in the mean scores for NARA-comprehension, t (15) = -5.894, $p < .001$, $\eta^2 = .70$. As for the previous studies, additional analysis was carried out on the mean comprehension scores, at pre- and post-intervention, for each text level in the NARA measure. These results are presented in Table 25. Analysis identified statistically significant differences for Levels 2 to 5 of the NARA measure. No significant differences were found for Level 1. Analysis was not carried out for Level 6 due to small sample size.

For the morphology measures, *t*-tests were carried out assuming normal distribution with effects sizes calculated using eta squared statistics. Significant differences were identified for all three measures: morphological awareness-judgement, t (15) = -2.992, $p = .009$, $\eta^2 = .37$; morphological production-morpho-syntactic, t (15) = -4.326, $p = .001$, $\eta^2 = .56$; and morphological production-word analogy, t (15) = -3.513, $p = .003$, $\eta^2 = .45$. Concerns regarding the normality of distribution for the judgement measure and the morpho-syntactic measure resulted in additional non-parametric analysis being performed. Wilcoxon

Signed Ranks Test identified a significant differences for both of these measures: judgement measure, Z (16) = -2.665, p = .008, and morpho-syntactic measure, Z (16) = -3.282, p = .001.

Table 25. *Results of Paired t-tests for NARA-Comprehension (Study 3)*

NARA Text Level	*n*	*t*	*p*	η^2
1	16	-.899	.383	.05
2	16	-6.260	.000*	.72
3	16	-2.905	.011**	.36
4	13	-5.432	.000*	.71
5	12	-2.861	.015**	.43
6	3			

*$p < .001$ **$p < .05$

The second aim of the study involved determining whether the targeted intervention that included instruction in specific literacy skills promoted psychosocial development. As with the previous studies, the first step in addressing this question was determining whether differences existed in the mean scores of the psychosocial measures at pre- and post-intervention. Paired sample *t*-tests were conducted on the mean scores for the psychosocial measures. These results are presented in Table 26. A significant difference was identified for emotional self-efficacy, t (15) = -2.251, p = .04, η^2 = .25 although all the psychosocial measures demonstrated increases in mean scores between testing periods. Non-parametric *t*-tests were also performed for the global self-esteem and resilience measures due to concerns regarding the normality of distribution; however, analysis (Wilcoxon Signed Ranks Test) did not identify a statistically significant difference, for either measure.

Table 26. *Results of Paired t-tests (n = 16) for the Psychosocial Measures (Study 3)*

Psychosocial Measure	*t*	*p*	η^2
Global Self-Esteem	-. 359	.724	.01
Academic Self-Esteem	-1.046	.312	.12
Resilience	-.891	.387	.05
General Self-Efficacy	-1.812	.090	.18
Academic Self-Efficacy	-.646	.528	.03
Social Self-Efficacy	-1.422	.176	.12
Emotional Self-Efficacy	-2.251	.040**	.25

**$p < .05$

Although the results suggested that statistically significant change did not occur for psychosocial development with the exception of emotional self-efficacy, the following section will focus on the key research question of whether change in literacy levels, produced by the targeted intervention, is associated with change in self-reported psychosocial development. Pearson product-moment correlations were performed in order to examine the relationship between the literacy and psychosocial measures. These correlations are displayed in Table 27. As with the previous studies, scatterplots were used as a visual aid to ensure that there were no non-linear relationships within the data. Analysis identified a statistically significant correlation between word analogy and general self-efficacy, $r = .508$, $n = 16$, $p = .045$. As with the previous studies, sample size was again acknowledged as a factor influencing statistical significance (Pallant, 2013). The sample size ($n = 16$) of the current study resulted in the Pearson product-moment correlations being reviewed using guidelines for determining effect sizes that included: small ($r = .10$ to .29), medium ($r = .3$ to .49), and large ($r = .50$ to 1.0) (Cohen, 1988). This resulted in numerous additional correlations being identified between the literacy and psychosocial measures. Of interest were the negative

correlations between the Burt and the psychosocial measures that included: global self-esteem, r = -.342, n = 16, p = .195; resilience, r = -.407, n = 16, p = .117; and academic self-efficacy, r = -.452, n = 16, p = .079. In contrast, positive correlations were identified between NARA-accuracy and several psychosocial measures that included: general self-efficacy, r = .396, n = 16, p = .129 and its academic, r = .258, n = 16, p = .335; social, r = .358, n = 16, p = .173; and emotional subscales, r = .378, n = 16, p = .148. NARA-rate was positively correlated with global self-esteem, r = .349, n = 16, p = .249, but was negatively correlated with social, r = -.305, n = 16, p = .251 and emotional self-efficacy, r = -.376, n = 16, p = .151.

For the morphology measures, a positive correlation was identified between the judgement task and academic self-esteem, r = .400, n = 16, p = .125 and social self-efficacy, r = .361, n = 16, p = .169. Multiple positive correlations were identified between word analogy and psychosocial measures that included resilience r = .401, n = 16, p = .123 and general self-efficacy, r = .508, n = 16, p = .045 along with its academic, r = .458, n = 16, p = .075, social, r = .399, n = 16, p = .126, and emotional subscales, r = .476, n = 16, p = .062. Concerns regarding the linearity of the NARA-accuracy and global self-esteem data, as well as, social self-efficacy resulted in the association between these variables being explored using Spearman's rho. Analysis indicated that in comparison to Pearson product-moment correlations, the association was stronger between NARA-accuracy and global self-esteem, ρ = .273, n = 16, p = .306, but weaker between NARA-accuracy and social self-efficacy, ρ = .351, n = 16, p = .182.

The amount of variance shared by the literacy and psychosocial measures was determined by calculating the coefficients of determination that were subsequently converted into percentages of variance. Calculations indicated that the Burt explained 12 % of the variance found for global self-esteem, 17 % of variance for resilience, and 20% of variance

for academic self-efficacy. NARA-accuracy accounted for 16 % of variance for general self-efficacy, and 13 % and 14 % of variance for social and emotional self-efficacy, respectively. The NARA-rate component explained 12 % of the variance for global self-esteem, 9 % of the variance for social self-efficacy, and 14 % of the variance for emotional self-efficacy. Word analogy accounted for 16 % of the variance in the resilience measure; as well as, 26 % of variance for general self-efficacy and its academic (21 %), social (16 %), and emotional (23 %) subscales.

Partial correlations were conducted in order to determine whether the literacy and psychosocial measures were associated with year level or gender. These results are presented in Table 28 (year level) and Table 29 (gender). Results indicated that when year level was controlled for, the negative correlation between the Burt and global self-esteem increased in strength from, r = -.342 to r = -.403. This increase explained an additional 4 % of variance for global self-esteem. The association between word analogy and various psychosocial measures also strengthened when year level was controlled for. This included an increase in the association between word analogy and resilience to statistical significance, r = .556, n = 16, p = .032, which contributed an additional 15 % of variance in students' scores, to total 31 % of variance. The strength of the relationship between word analogy and general self-efficacy increased from r = .508 to r = .613, contributing an additional 12 % of variance, to total 38 % of variance. Increases were also identified between the word analogy measure and the subscales of the self-efficacy measure: academic, r = .458 to r = .523; social, r = .399 to r = .451; and emotional, r = .476 to r = .626. The increase between the association between word analogy and emotional self-efficacy contributed an additional 16 % of variance in students' responses.

Analysis indicated that gender was also an influential factor that affected the strength of associations between literacy skills and psychosocial development. As for year level,

stronger associations were identified for the word analogy measure and self-efficacy. The association between word analogy and general self-efficacy increased from $r = .508$ to $r = .544$, which accounted for an additional 4 % of variance, and increases in the academic, $r = .458$ to $r = .494$; social, $r = .399$ to $r = .423$; and emotional subscales were evident, $r = .476$ to $r = .509$. One additional finding of interest was the increase in the positive association between NARA-accuracy and academic self-esteem, $r = .053$ to $r = .326$. This indicated that controlling for gender contributed to strengthening the relationship between these two variables, with the accuracy component accounting for a total of 11 % of variance in students' responses on the academic self-esteem measure. Analysis also indicated that controlling for gender decreased the negative association between the Burt and academic self-esteem from $r = -.262$ to $r = .000$, which accounted for a reduction of 7 % of variance, which was calculated during zero order correlations.

Table 27. *Pearson Product-Moment Correlations Between Literacy and Psychosocial Measures (Study 3)*

	GSE	ASE	RES	GSEff	GSEff-Aca	GSEff-Soc	GSEff-Emo
Burt	**-.342**	-.262	**-.407**	-.172	**-.452**	.101	-.121
NARA-Acc	.215	.053	.201	**.396**	.258	**.358**	**.378**
NARA-Comp	**-.306**	.024	-.031	-.113	.098	-.188	-.116
NARA-Rate	**.349**	.261	-.051	-.245	.245	**-.305**	**-.376**
MA	.230	**.400**	.080	.265	-.048	**.361**	.253
MP-MS	**-.375**	.049	-.120	-.129	-.186	-.199	.017
MP-WA	.109	-.038	**.401**	**.508**	**.458**	**.399**	**.476**

Note. Cohen's (1998) guidelines include large correlations (r = .5 to 1.0), medium correlations (r = .30 to .49), and small correlations (r = .10 to .29).
Burt = Burt Reading Test; NARA-Acc = NARA-Accuracy; NARA-Comp = NARA-Comprehension; NARA-Rate = NARA-Rate of Reading; MA = Morphological Awareness-Judgement; MP-MS = Morphological Production-Morpho-Syntactic; MP-WA = Morphological Production-Word Analogy; GSE = Global Self-Esteem; ASE = Academic Self-Esteem; RES = Resilience; GSEff = General Self-Efficacy; GSEff-Aca = General Self-Efficacy-Academic; GSEff-Soc = General Self-Efficacy-Social; GSEff-Emo = General Self-Efficacy-Emotional.
* Boldface indicates medium and large correlations

Table 28. *Partial Correlations Between Literacy and Psychosocial Measures Controlling for Year Level (Study 3)*

	GSE	ASE	RES	GSEff	GSEff-Aca	GSEff-Soc	GSEff-Emo
Burt	**-.403**	-.271	**-.388**	-.156	**-.448**	-.005	-.093
NARA-Acc	.288	.063	.161	**.381**	.252	**.357**	**.351**
NARA-Comp	-.226	.043	-.131	-.174	.082	-.218	-.215
NARA-Rate	.287	.260	.024	-.217	.277	**.307**	**-.333**
MA	.275	**.408**	.055	.254	-.055	**.359**	.235
MP-MS	-.293	.075	-.251	-.205	-.233	-.238	-.085
MP-WA	-.004	-.060	**.556**	**.613**	**.523**	**.451**	**.626**

Note. Cohen's (1998) guidelines include large correlations (r = .5 to 1.0), medium correlations (r = .30 to .49), and small correlations (r = .10 to .29). Burt = Burt Reading Test; NARA-Acc = NARA-Accuracy; NARA-Comp = NARA-Comprehension; NARA-Rate = NARA-Rate of Reading; MA = Morphological Awareness-Judgement; MP-MS = Morphological Production-Morpho-Syntactic; MP-WA = Morphological Production-Word Analogy; GSE = Global Self-Esteem; ASE = Academic Self-Esteem; RES = Resilience; GSEff = General Self-Efficacy; GSEff-Aca = General Self-Efficacy-Academic; GSEff-Soc = General Self-Efficacy-Social; GSEff-Emo = General Self-Efficacy-Emotional.

* Boldface indicates medium and large correlations

Table 29. *Partial Correlations for Literacy and Psychosocial Measures Controlling for Gender (Study 3)*

	GSE	ASE	RES	GSEff	GSEff-Aca	GSEff-Soc	GSEff-Emo
Burt	-.267	.000	**-.428**	-.125	**-.426**	.031	-.075
NARA-Acc	.294	**.326**	.208	**.443**	**.301**	**.392**	**.421**
NARA-Comp	**-.315**	.061	-.031	-.111	.103	-.187	-.114
NARA-Rate	**.335**	.284	-.053	-.267	.232	**-.321**	**-.399**
MA	.166	**.330**	.079	.235	-.095	**.346**	.225
MP-MS	**-.402**	.046	-.120	-.135	-.193	-.203	.013
MP-WA	.162	.116	**.408**	**.544**	**.494**	**.423**	**.509**

Note. Cohen's (1998) guidelines include large correlations (r = .5 to 1.0), medium correlations (r = .30 to .49), and small correlations (r = .10 to .29). Burt = Burt Reading Test; NARA-Acc = NARA-Accuracy; NARA-Comp = NARA-Comprehension; NARA-Rate = NARA-Rate of Reading; MA = Morphological Awareness-Judgement; MP-MS = Morphological Production-Morpho-Syntactic; MP-WA = Morphological Production-Word Analogy; GSE = Global Self-Esteem; ASE = Academic Self-Esteem; RES = Resilience; GSEff = General Self-Efficacy; GSEff-Aca = General Self-Efficacy-Academic; GSEff-Soc = General Self-Efficacy-Social; GSEff-Emo = General Self-Efficacy-Emotional.

* Boldface indicates medium and large correlations

The control data were analysed by categorising the Year 4 to 6 students, from the participating school, into three groups: the Intervention Group (*n = 16)*, the alternate school-led intervention group (Control Group 1, *n* = 10), and the remainder of Year 4 to 6 students (Control Group 2, *n* = 78). As aforementioned, students previously involved in the intervention groups in Study 1 and Study 2 were not eligible to be included in the control data. Descriptive statistics are provided in Table 30.

Table 30. *Descriptive Statistics for Analysis of Control Data (Study 3)*

	Mid Year			End of Year		
	n	*M*	*SD*	*n*	*M*	*SD*
Running Record						
Intervention Group	16	9.65	1.70	16	10.25	1.55
Control Group 1	9	7.89	1.72	9	8.56	1.61
Control Group 2	69	11.46	1.81	69	12.35	1.43
STAR						
Intervention Group	10	5.90	1.66	10	5.20	1.55
Control Group	5	5.40	2.07	5	4.00	1.87
Control Group 2	57	7.21	1.54	57	6.65	1.48
OTJ-R						
Intervention Group	16	2.88	.72	16	3.19	.83
Control Group 1	9	2.33	1.23	9	2.22	1.30
Control Group 2	69	3.81	.39	69	3.90	.30

Analysis of the control data, for the current study, included three sets of measures routinely collected by the school as part of their assessment schedule. As for the previous study, this data included one standardised measure (STAR), Running Records; as well as, an

overall teacher judgement in reading (OTJ-R) that related to National Standards. Pearson product-moment correlation coefficient analysis was performed on the three measures, to determine the reliability of the measures included in the current analysis. Analysis identified statistically significant associations between the measures. The OTJ-R measure was significantly related to Running Records, $r = .615$, $n = 94$, $p < .001$ and STAR reading, $r = .582$, $n = 75$, $p < .001$. As with the previous studies, the OTJ-R measure was considered to be a reliable measure, against the standardised measures, and was included in subsequent analyses.

Descriptive statistics indicated that the Intervention Group performed better than Control Group 1 in all three measures at pre- and post-intervention testing. All three groups demonstrated gains to the mean scores on the Running Record measure; however, the Intervention Group made the smallest gain (.60) of the three groups. For the STAR measure, decreases to the mean score were demonstrated for the three groups between testing periods. The largest decrease was found for Control Group 1 (1.4), with the Intervention Group and Control Group 2 decreasing by .70 and .56, respectively. The Intervention Group demonstrated the largest gains between the testing periods on the OTJ-R measure, with a mean increase of .31. Control Group 2 demonstrated a mean increase of .09, while the mean score of Control Group 1 decreased by .11.

Mixed between-within subjects analysis of variance were conducted on the Running Record and OTJ-R measures to determine if mean scores within the groups differed across the two time points of data collection; as well as, between the performance of the groups over the two time points. Analysis was not performed for the STAR data, given that all three groups had demonstrated decreases between testing points. Analysis of the Running Record data identified a significant effect for time, $F(1, 91) = 55.291$, $p < .001$, $\eta_p^2 = .378$. No significant interaction effect was identified between group and time, $F(2,91) = .818$, p =

.445, η_ρ^2 = .018. Analysis of the OTJ-R measure indicated no significant effect for time, *F* (1,91) = 2.031, *p* = .158, η_ρ^2 = .022, or for time and group, *F* (2,91) = .2.600, *p* = .08, η_ρ^2 = .054.

Discussion

The current study was again concerned with the psychosocial and literacy development of students with LLD, in Years 4 to 6. The study was underpinned by three research questions. The first question related to whether the psychosocial development of students with LLD could be positively affected, via a targeted intervention that focused on developing specific literacy skills. The second question related to whether the literacy development of students with LLD could be positively affected, via the targeted intervention. The key research question related to whether change in literacy scores in students with LLD was associated with change in psychosocial development. As with Study 2, the current study focused on the development of metalinguistic skills, primarily focusing on morphological and orthographic awareness.

The data suggests that the students in the current study were experiencing difficulties in their literacy development. Mean scores on the control data indicated that on the standardised STAR measure, students performed on average at Stanine 5, which placed the students within the 58th percentile. While this is higher than the previous studies, these students were still, on average, rated at working below national standards in their OTJ-R. Pre-intervention scores on the NARA measure indicated that, on average, students were performing around 7.9 to 8.5 years of age. On the Burt measure, data indicated that at pre-intervention, on average, students were performing around 9 years of age. As with the previous studies, variability was evident within the ranges of these scores. Comparison of this intervention data and school-based data, suggest that students were performing behind their

peers in their literacy learning.

Results found significant changes in the mean scores for emotional self-efficacy. Correlational analysis indicated that emotional self-efficacy was positively and moderately associated with NARA-accuracy, word analogy, and to a lesser degree morphological awareness (judgement). As with Study 2, emotional self-efficacy was moderately but negatively associated with NARA-rate. Significant gains were identified for all measures of literacy that indicated increases in students' literacy development over the course of the intervention. Analysis identified a significant and positive association between word analogy and general self-efficacy. Word analogy was also positively associated with resilience, as well as, social self-efficacy. Controlling for year level increased the strength of the association between word analogy and multiple psychosocial measures. In addition to the significant association between word analogy and general self-efficacy, associations with resilience, emotional self-efficacy, and academic self-efficacy measures increased from medium to large correlations.

Academic self-esteem was moderately correlated with one literacy measure, morphological awareness-judgement. Controlling for gender increased the positive association between academic self-esteem and NARA-accuracy, from a negligible to a medium correlation. Controlling for gender decreased the correlation between academic self-esteem and the Burt from a small to a nil correlation. Global self-esteem was found to be moderately but negatively related to multiple literacy measures that included the Burt, NARA-comprehension, and the morpho-syntactic measure. The Burt was also negatively associated with resilience and academic self-efficacy.

Analysis of the control data that comprised the school-based assessment data for the STAR, Running Records, and overall teacher judgement-reading (OTJ-R) measures,

indicated that the Intervention Group made significant gains, between the testing periods, on the Running Record and demonstrated some gains on the OTJ-R measures. No significant gain was identified for the STAR measure, with all three groups demonstrating decreases between mean scores.

The results of the current study indicate that the targeted intervention positively influenced the literacy development of students with LLD. The current findings support the findings from Study 2. The growth over time for the Running Record and OTJ-R measures indicates that development has occurred in terms of students' levels of literacy that appears to be comparable to the gains demonstrated by the other groups. It is unclear why decreases in the STAR measure occurred; however, the fact that decreases occurred for the three groups suggests that this finding could be attributed to school factors that may include administration procedures, rather than reflecting student progress or the current intervention. The significant mean gain in emotional self-efficacy indicates that the targeted intervention had a positive influence on students with LLD. Other gains in psychosocial measures were evident; however, these were not significant.

Psychosocial Development

The main finding of a significant increase in emotional self-efficacy indicates that the students with LLD, in the current study, perceive themselves as being able to manage their emotions more effectively. This suggests that challenges or difficulties within the intervention enabled students to develop the ability to interpret their emotional responses more positively that resulted in positive increases to emotional self-efficacy. It could also be suggested that the level of emotional arousal evoked by challenges within this intervention, was less than in Study 2, enabling a more positive evaluation and interpretation of their emotional arousal. According to Bandura (1997) the level of arousal is influential to the judgements that individuals make when evaluating individual capabilities. He further

suggested that moderate arousal is optimal for the application of skills, while high arousal promotes maladaptive functioning. The finding of a significant difference for emotional self-efficacy supports the notion that emotional states are influential on judgements and therefore self-efficacy beliefs (Pajares, 1996). It is also possible that the emotional self-efficacy of students had developed some stability as a result of previous experiences (Bandura, 1997). One factor contributing to existing emotional states may be students' levels of literacy development. According to Bandura (1997) self-efficacy is influenced by the association that children make between emotional states and performance achievement. He further notes that how children interpret their emotional state that relates to performance, will affect self-efficacy. Differences in literacy attainment between the intervention groups will be discussed further in Chapter 6 (Additional Analyses).

Another factor contributing to arousal levels may be students' self-efficacy beliefs. According to van Dinther et al. (2011) the level of general self-efficacy; that is, self-efficacious beliefs, is influential to individual's emotional response to situations. Thus, it would be expected that differences in general self-efficacy would be evident between Study 3 and Study 2 that found no significant difference in emotional self-efficacy. It would be expected that these would be evident at pre-intervention because their self-efficacious beliefs at pre-intervention would influence their emotional responses during the experiences. However, this notion was not supported in the current study. Little difference was found between the mean scores at pre-intervention for general self-efficacy for Study 2 (95.66) and Study 3 (96.50). Analysis indicated no significant difference, Welch's F (1, 34) = 0.12, p = .912. This finding suggests that other factors are influencing arousal levels and self-efficacy. This will be discussed in Chapter 7 (General Discussion).

The significant gain in emotional self-efficacy was accompanied with positive and negative associations with literacy measures. As with Study 2, emotional self-efficacy was

negatively correlated with the Burt and NARA-rate, however, in the current study, emotional self-efficacy was positively associated with NARA-accuracy and word analogy. It could be suggested that the positive increases in NARA-accuracy and word analogy mediated; that is, reduced, the negative association that the Burt and NARA-rate measures exerted on the development of emotional self-efficacy. According to Bong and Skaalvik (2003) self-efficacy is influenced by the expectations that individuals hold regarding their confidence in their ability to use skills and abilities within the future. The positive association with accuracy and word analogy suggests that students were more confident about text reading and transforming morphological units than single words reading and the rate at which they read. It is likely that aspects in the intervention environment influenced these findings. The repeated reading component of the intervention may have supported the positive association between NARA-accuracy and emotional self-efficacy. The component comprised of the reading of the text being modelled to students, which meant students were supported in the reading of unknown vocabulary, prior to student's reading. In contrast, the single word-reading component (decoding), which students experienced on a daily basis, required students to apply their knowledge to decode vocabulary, and following initial instruction students were encouraged to attempt this independently, by applying the taught strategy. Furthermore, the decoding component required students to apply a strategy, which comprised of mostly newly developed skills that may have resulted in higher emotional state for students. Bandura (1997) suggests that performance that requires precise application and execution can be impaired by higher emotional responses from individuals. The repeated reading component may have resulted in lower emotional responses in students because they may have been more skilled at reading or the scaffolding that included a modelling of the text, may have been at a level that facilitated successful experiences. Furthermore, the repeated reading process provided students with multiple practice opportunities that contributed towards the

achievement of mastery. According to Bandura (1997) mastery is the most effective means by which individuals build a strong sense of self-efficacy.

The finding that academic self-esteem was associated with few literacy measures may be indicative of students' levels of differentiation within the self-esteem domain. Global self-esteem was moderately associated with multiple literacy measures, which indicates that literacy may be an influential contributor to students' overall sense of self. The moderate, positive association between academic self-esteem and NARA-rate indicates that the visible nature of the intervention that comprised an element of aloud reading may be an important factor that can positively influence the development of academic self-esteem. According to Skaalvik (1997) antecedents exist that influence the development of self-esteem that include the appraisals of others, mastery experiences, and psychological centrality (aspects that are important to the individual). The read aloud component provided students with opportunities to receive social information from others that are used to make comparative judgements about their own capabilities. This social information is, according to Bong and Skaalvik (2003), relied on for individuals' assessments of their self-esteem. This social information could include positive feedback from the teacher and students, as well as, providing multiple opportunities for success and mastery via the repeated reading component.

The experience of success for students and social information may also influence whether specific aspects of literacy development become psychologically central to the individual. NARA-rate may be important to students because it represents the ability to read aloud, which in the current study, was visible to others and as such was open to social feedback. Students also considered single word reading accuracy, comprehension, and morpho-syntactic skills as important to global self-esteem; however, these were negative associations. It could be suggested that the students, in the current intervention, perceived themselves as less competent in these aforementioned areas, regardless of their actual ability.

These notions are most likely to be embedded in students as a result of the judgements made in previous experiences; however, it could be suggested that facets of the intervention contributed to these notions. For example, the comprehension component was not an explicit focus of the intervention, instead being primarily used to reinforce morphological understandings. Single word reading required the application of a strategy that included flexing vowel accents; thus, students often experienced disappointment before success. It could be suggested that initial disappointments held more sway for students over any success that followed.

The findings in the current study regarding a lack of association between academic self-esteem and measures of literacy development that reflect academic achievement, does not support current literature. According to Muijs (1997) and Chapman (1988) the relationship between academic self-esteem and academic achievement is stronger than the relationship between global self-esteem and academic achievement. However, in contrast, the findings from this study suggest a stronger relationship exists between global self-esteem and literacy measures, which indicates that literacy development is an important contributor to students' global self-esteem, in the current study. That said, the moderate correlation between academic self-esteem and morphological awareness-judgement may be indicative of an emerging relationship between academic self-esteem and academic achievement; however, this relationship appears to be developing later than researchers, such as Chapman (1988) tend to suggest. Small correlations were identified for the Burt and NARA-rate. However, the association with the Burt disappeared when gender was controlled for, which indicates that the correlation was the result of gender differences. A review of descriptive statistics indicated that the males demonstrated higher mean difference scores ($M = 9.77$) than the females ($M = 7.71$). A moderate association between academic self-esteem and NARA-accuracy was identified when the influence of gender was controlled for. This suggests that

controlling for gender made the relationship between these two variables clearer. It is unclear why this relationship emerged; however, this could be indicative of the development of a more differentiated construct of academic self-esteem emerging in the students with LLD.

Literacy Development

Analysis indicated that word analogy was positively associated with resilience and the general self-efficacy scale and its subscales. Controlling for year level increased the strength of these associations, with resilience, emotional self-efficacy, and academic self-efficacy measures increasing from medium to large correlations. It is unclear why such strong associations occurred. With regard to academic self-efficacy, it could be suggested that over the duration of the intervention, students increased in confidence in terms of their perceptions of their ability to transform or decompose words using their constituent morphological units. Furthermore, as aforementioned, if students experienced success in developing morphological skills, it is unlikely that their emotional responses would have been heightened, impairing the development of skills (Bandura, 1997). Lower levels of emotionality may have further facilitated the development of skills, thus, positively influencing the development of academic self-efficacy, as well as, providing reinforcement to the students in terms of their evaluations of their capacity to perform similar tasks in the future. The role of peers and teachers is influential to the development of self-efficacy. Positive social responses from others, as well as, vicarious learning, may have strengthened students' perceptions regarding their capabilities to develop and maintain social relationships. The composition of the peer group, within the current study, appears to be influential to psychosocial development. With regards to resilience, improvements suggest that developing students' morphological skills was an influential factor in students' perceptions regarding their ability. It could be suggested that improvements in self-efficacy were associated with students' ability to function successfully when faced with challenging situations in the future.

It is also possible that improvements in self-efficacy are associated with resilience; however, this requires further analyses. These notions will be discussed in Chapter 7 (General Discussion).

Conclusion

As with the two previous studies, correlations between literacy and psychosocial measures were variable and included both positive and negative associations. The lack of consistency between the results, beyond the finding for emotional self-efficacy in Study 1 and Study 3, indicates that other variables are influential to the psychosocial development of students with LLD. According to literature, other variables include year level/age (Chapman, 1988), gender (Badayai & Ismail, 2012). Findings from the current research also indicates that initial levels of literacy and psychosocial development, may be important to understanding changes to psychosocial development. These factors will be discussed in Chapter 6 (Additional Analyses) and Chapter 7 (General Discussion).

Chapter 6

Study 1, 2, and 3 - Additional Analyses

Introduction

The three studies that comprised the research within this thesis concerned the psychosocial and literacy development of students from Year 4 to 6, who had literacy learning difficulties (LLD). The changes in pre- and post-intervention mean scores, across the three studies, indicated that the literacy development of the students with LLD had significantly improved over the period of the intervention. Changes in mean scores for the psychosocial measures between testing periods were variable across the studies. In Study 1, significant differences, with large effect sizes, were found for academic self-esteem and general and emotional self-efficacy. Analysis of Study 2 data failed to identify any significant growth in psychosocial development, in fact decreases in the mean scores between testing periods were evident for all psychosocial measures. This suggested that the psychosocial development of students was adversely affected, over the course of the intervention. For Study 3, positive gains were identified for all psychosocial measures between pre- and post-intervention; however, significant change only occurred for emotional self-efficacy. Overall, significant change was identified for one psychosocial measure within the research project, emotional self-efficacy (Study 1 and Study 3). The finding of decreases in mean scores of the psychosocial measures, between testing periods in Study 2 are anomalous with the findings from Study 1 and 3.

Zero order correlations carried out for each study identified various associations between the literacy and psychosocial development measures. However, these analyses are

difficult to interpret because of the varied associations between the measures in each study, as well as, variance in the strength and direction of identified associations. Partial correlations, which controlled for year level and gender respectively, indicated that these variables, at times, mediated the relationship between literacy and psychosocial development; however, these findings differed across the three studies. While the data from each study were interpreted in isolation, overall the variability in the findings suggest that additional analyses are required in order for conclusions or suggestions to be made regarding the effectiveness of the targeted literacy intervention on psychosocial development. The purpose of this chapter is to report the additional analyses that were performed in order to explore whether other variables existed that influenced psychosocial and literacy development in students with LLD.

Research Questions

The additional analyses in the current chapter were framed by the following research questions:

1. Do individual differences influence the responses of participants in the psychosocial measures (Study 2)?
2. Is year level influential to the psychosocial and literacy development of students with LLD?
3. Is gender influential to the psychosocial and literacy development of students with LLD?
4. Do differences exist in the psychosocial and literacy development of students with LLD at pre-intervention (Study 1, 2, 3)?
5. Are scores on psychosocial measures at pre-intervention associated with psychosocial and literacy development (Study 1, 2, 3)?

Comparisons of Psychosocial Development in Students with LLD-Study 2

The first additional analyses were performed to explore whether the anomalous results of the psychosocial measures in Study 2 could be attributed to the responses of specific participants within the intervention group. Descriptive statistics identified some participants as outliers; however, this varied across measures. The decision was made to repeat the paired sample *t-tests* for the psychosocial data, removing from the analyses two participants who had been identified as outliers in the descriptive statistics. The first analysis removed Participant 211. This participant was the only Year 5 student involved in Study 2 and was identified as an outlier in the global self-esteem measure. Subsequent analysis using paired sample *t-tests,* failed to identify any significant differences in any of the psychosocial measures. The second analysis removed Participant 202, a Year 6 student whom was also experiencing a high degree of difficulty within their general educational and their home settings. Paired sample *t-tests* did not identify any significant differences in the psychosocial measures. These results are presented in Appendix 7 (Participant 211) and Appendix 8 (Participant 202).

Comparisons of Literacy Skills and Psychosocial Development at Pre-Intervention in Students with LLD-Year Level

The analysis included performing one-way between-groups analysis of variance to explore whether year level was associated with psychosocial and literacy development of students with LLD. The participants were categorised into three different year groups (Year 4, Year 5, and Year 6), based on students' year level at the time of intervention. One-way between-groups analyses of variance were performed and effect sizes (η^2) were calculated using eta squared, with Cohen's (1988) classification for effect size being used (small, .01; medium, .06; large, .14).

Psychosocial Measures

Analysis indicated a significant difference for academic self-efficacy, F (2, 54) = 7.172, p = .002, η^2 = .21 and general self-efficacy, F (2, 54) = 4.854, p = .012, η^2 = .15. Statistical significance was approached for social self-efficacy, F (2, 54) = 3.065, p = .055, η^2 = .10. Post-hoc comparisons, using Tukey HSD test indicated that for academic self-efficacy, the mean score for Year 4 students (M = 37.47, SD = 6.166) differed significantly from Year 6 students (M = 29.14, SD = 6.905). For general self-efficacy, the mean score for Year 4 students (M = 107.71, SD = 17.620) differed significantly from Year 6 students (M = 89.04, SD = 18.875). The descriptive statistics for these results are presented in Appendix 9.

Literacy Measures

There was a significant difference for the Burt, F (2, 54) = 3.377, p = .041, η^2 = .11. The NARA-rate component approached statistical significance, F (2, 54) = 3.009, p = .058, η^2= .10. Levene's test for homogeneity of variance indicated that the assumption of homogeneity of variance was violated for the NARA-comprehension (p = .026) and morpho-syntactic measures (p = .023). Analysis, using the Welch test, identified statistically significant differences for both measures; NARA-comprehension, F (2, 25.56) = 3.892, p = .033, η^2 = .07; morpho-syntactic, F (2, 32.48) = 11.149, p < .001, η^2 = .64. Post-hoc comparisons for the Burt, using the Tukey HSD test, indicated that the mean score for Year 5 students (M = 56.25, SD = 16.405) differed significantly from Year 6 students, (M = 44.25, SD = 15.474). Post-hoc comparisons for NARA-comprehension, performed using the Games Howell Test, indicated that the mean score for Year 4 students (M = 9.29, SD = 2.910) differed significantly from Year 5 students (M = 14.00, SD = 5.641). Post-hoc comparisons (Games Howell Test) for the morpho-syntactic measure found that the mean score for Year 4 students (M = 9.06, SD = 4.205) differed significantly from Year 5 students (M = 14.25, SD =

1.913), as well as, Year 6 students (M = 14.50, SD = 3.786). No significant difference was identified for the mean scores of Year 5 and Year 6 students for the morpho-syntactic measure. The descriptive statistics are presented in Appendix 10.

Comparisons of Literacy Skills and Psychosocial Development in Students with LLD at Pre-Intervention-Gender

One-way between-groups analyses of variance were performed to explore the influence of gender on psychosocial and literacy development of students with LLD. Students were categorised into two groups: female and male. Effect sizes (η^2) were calculated using eta squared, according to the aforementioned guidelines (Cohen, 1988).

Psychosocial Measures

Analysis failed to identify any significant differences in the measures that would indicate that gender impacted on psychosocial development. Levene's test for homogeneity of variance indicated that this assumption was violated for academic self-esteem (p = .002) and academic self-efficacy (p = .025). The Welch test was performed for these two measures. No statistical significance identified for academic self-esteem, F (1, 45.977) = .013, p = .911, η^2 = .0002 or academic self-efficacy, F (1, 50.828) = 1.008, p = .320, η^2 = .019. These results are presented in Appendix 11.

Literacy Measures

One-way between-groups analysis of variance identified a significant difference between males and females for the word analogy measure, F (1, 55) = 4.242, p = .047, η^2 = .11. Levene's test for homogeneity of variance indicated that the assumption of homogeneity of variance was violated for the morpho-syntactic measure (p = .045). The Welch test found

no statistical significance for this measure, F (1, 51.445) = .293, p = .591, η^2 = .005. These results are presented in Appendix 12.

Between Study Comparisons of Literacy Skills and Psychosocial Development at Pre-Intervention in Students with LLD -Intervention Groups

This set of analyses included performing one-way between-groups analyses of variance to explore whether differences existed in the psychosocial and literacy development of students at pre-intervention, between Study 1, 2, and 3. The first set of analysis was performed for the psychosocial measures with the exception of the reading attitude measure, which had only been administered in Study 1. Analysis failed to identify any significant differences for the psychosocial measures. The descriptive statistics are presented in Appendix 13. Levene's test for homogeneity of variance indicated that assumption of homogeneity of variance was violated for academic self-esteem (p = .003). The Welch test failed to identify any significant difference in the mean scores for this measure, F (2, 34.29) = .131, p = .878, η^2 = .007.

A second analysis was performed for the literacy measures. Descriptive statistics are provided in Appendix 14. Analysis identified significant differences for the Burt, F (2, 54) = 9.132, p < .001, η^2 = .25; NARA-accuracy, F (2, 54) = 6.992, p = .002, η^2 = .21; NARA-rate, F (2, 54) = 11.465, p < .001, η^2 = .30, but not for NARA-comprehension, F (2, 54) = 2.207, p = .120, η^2 = .07. Significant differences were identified for the three morphology measures; judgement, F (2, 54) = 5.318, p = .008, η^2= .16, morpho-syntactic, F (2, 54) = 43.375, p < .001, η^2 = .62; and word analogy, F (1, 34) = 12.407, p = .001, η^2 = .27.

Post-hoc comparisons, using Tukey HSD test, were performed on the literacy measures, except for the NARA-comprehension component due to its non-significant finding and the word analogy measure because the data only included two groups (Study 2 and Study

3). For the Burt, analysis indicated that the mean score for Study 1 (M = 44.05, SD = 14.938) differed significantly from the mean score for Study 3 (M = 58.31, SD = 14.084) and that the mean score for Study 2 (M = 40.10, SD = 10.141) differed significantly from the mean score of Study 3 (M = 58.31, SD = 14.084). No difference was identified between the mean scores of Study 1 and Study 2. For NARA-accuracy, the mean score for Study 1 (M = 33.67, SD = 17.502) differed significantly from the mean score of Study 3 (M = 44.05, SD = 14.938) and the mean score of Study 2 (M = 27.20, SD = 9.935) differed significantly from Study 3 (M = 44.05, SD = 14.938). No significant differences were identified between the mean scores from Study 1 and Study 2. For NARA-rate, significant differences were identified between the mean scores of Study 1 (M = 39.344, SD = 18.087) and Study 3 (M = 53.541, SD = 16.567), as well as, Study 2 (M = 29.664, SD = 8.277) and Study 3 (M = 53.541, SD = 16.567). No significant differences were identified between Study 1 and Study 2.

For the morphological awareness-judgement measure, post-hoc comparison analyses identified significant differences in the mean scores for Study 2 (M = 10.60, SD = 3.267) and Study 3 (M = 14.06, SD = 4.219). For the morpho-syntactic measure, significant differences were found in the mean scores of Study 1 (M = 16.71, SD = 1.978) and Study 2 (M = 8.75, SD = 3.041); Study 1 (M = 16.71, SD = 1.978) and Study 3 (M = 12.81, SD = 3.167); as well as, Study 2 (M = 8.75, SD = 3.041) and Study 3 (M = 12.81, SD = 3.167).

Within Study Comparisons of Psychosocial Development and Literacy Skills in Students with LLD-Psychosocial Measures

This set of analyses was performed in order to determine whether psychosocial scores at pre-intervention were associated with measures of psychosocial and literacy development for Study 1, 2, and 3. Three psychosocial measures were selected for analysis that included: global self-esteem, academic self-esteem, and resilience. These measures were selected

because these measures reflected the main variables of interest within this study, self-esteem and resilience.

Global Self-Esteem

The first set of analyses were performed, using mixed between-within subjects analysis of variance, for the global self-esteem scores in Study 1, 2, and 3, respectively. The participants were categorised into three groups according to their score at pre-intervention, on the global self-esteem measure (Low, 10-25; Average, 26-35; High, 36-40). Small sample size (n = 1) for the high group in Study 1 and 2, resulted in a collapsed group (average-high) being formed that included the high and average students. The determination of the scores for each group followed score identified within literature (Rosenberg et al., 1995), which had previously determined group composition according to respondents' score values. Results for Study 3 are not reported because 14 of the 16 participants' scores fell within the average group, making analysis unfeasible. The descriptive statistics are presented in Appendix 15 (Study 1) and Appendix 16 (Study 2).

Study 1.

Psychosocial measures.

For the global self-esteem measure, a main effect was identified for time, F (1, 19) = 11.196, p = .003, η_{ρ}^2 = .371. An interaction effect was identified between level of global self-esteem and time, F (1, 19) = 17.799, p = .003, η_{ρ}^2 = .484, with the low group making positive gains between testing periods. No interaction effect was identified for academic self-esteem, F (1, 19) = 1.000, p = .927, η_{ρ}^2 = .0004; however, there was a main effect for time, F (1, 19) = 8.825, p = .008, η_{ρ}^2= .317. For the resilience measure, no main effect for time was identified, F (1, 19) = .002, p = .962, η_{ρ}^2 = .000. An interaction effect was identified for the resilience

measure between level of global self-esteem and time, F (1, 19) = 7.285, p = .014, η_ρ^2 = .277, with the low group demonstrating a gain over time, while the average-high group demonstrated a decrease over time. For the self-efficacy measure, analysis identified an effect over time for general self-efficacy, F (1, 19) = 8.350, p = .009, η_ρ^2 = .305 and the social, F (1, 19) = 4.747, p = .042, η_ρ^2 = .200 and emotional subscales, F (1, 19) = 12.919, p = .002, η_ρ^2 = .405. No effect for time was identified for academic self-efficacy, F (1, 19) = .467, p = .503, η_ρ^2 = .023. No interaction effects for level of global self-esteem and time were identified for general self-efficacy or its subscales.

Literacy measures.

For the Burt, a main effect was identified for time, F (1, 19) = 29.351, p < .001, η_ρ^2 = .607. There was no interaction effect identified for the Burt between level of global self-esteem and time, F (1, 19) = .045, p = .834, η_ρ^2 = .002. For the NARA measure, a main effect for time was identified for accuracy, F (1, 19) = .17.567, p < .001, η_ρ^2 = .480 and comprehension, F (1, 19) = 134.137, p < .001, η_ρ^2 = .876, but not for rate, F (1, 19) = .053, p = .820, η_ρ^2 = .003. No interaction effects between time and level of global self-esteem were identified for the NARA measure. For the morphological awareness-judgement measure, a main effect of time was identified, F (1, 19) = 5.667, p = .028, η_ρ^2 = .230; however, no other main or interaction effects were identified for the morphology measures.

Study 2.

Psychosocial measures.

The analysis of the psychosocial measures for Study 2 failed to identify any main or interaction effects for the global self-esteem, academic self-esteem, or resilience measure. For the self-efficacy measure, no main effects were identified for the full scale or subscales.

An interaction effect between time and level of global self-esteem was identified for emotional self-efficacy, F (1, 18) = 7.171, p = .015, η_ρ^2 = .285, with the low group demonstrating increased levels of emotional self-efficacy, while the high group demonstrated decreases, between testing periods.

Literacy Measures.

The analysis of the literacy measures identified a main effect (time) for the Burt, F (1, 18) = 87.562, p < .001, η_ρ^2 = .829; NARA-accuracy, F (1, 18) = 76.450, p < .001, η_ρ^2 = .809, NARA-comprehension, F (1, 18) = 28.793, p < .001, η_ρ^2 = .615, and NARA-rate, F (1, 18) = 28.635, p < .001, η_ρ^2 = .614. For the morphology measures, a main effect for time was identified for morpho-syntactic, F (1, 18) = 18.241, p < .001, η_ρ^2 = .503, and word analogy, F (1, 18) = 53.827, p < .001, η_ρ^2 = .749. No interaction effects between level of global self-esteem and time were identified for the literacy measures.

Academic Self-Esteem

The second set of analyses was performed for the academic self-esteem measure, for Study 1, 2, and 3, respectively, using mixed between-within subject analysis of variance. The participants were categorised into three groups according to their score at pre-intervention on the academic self-esteem measure (Low, 6-12; Average, 13-17; High, 18-24). The determination of level of academic self-esteem followed the notion that higher scores represented higher levels of academic self-esteem. Additionally, Baumeister, Tice, and Hutton (1989) found that the use of mean or median scores has resulted in a skewed distribution of self-esteem scores in countries underpinned by Western philosophies; thus, conceptual points were used to determine levels of self-esteem in an absolute sense. In Study 1, small sample size in the high group (n = 2) resulted in a collapsed group being formed that consisted of average and high students (average-high). Small sample size in the low academic

self-esteem group (n = 1) made between groups analysis untenable for Study 3 and as such were not performed. The descriptive statistics are presented in Appendix 17 (Study 1) and Appendix 18 (Study 2).

Study 1.

Psychosocial measures.

For the measures of self-esteem, a main effect for time was identified for global self-esteem, F (1, 19) = 5.720, p = .027, η_ρ^2 = .231 and academic self-esteem, F (1, 19) = 14.337, p = .001, η_ρ^2 = .430. No interaction effects for level of academic self-esteem and time were identified for the self-esteem measures. For the resilience measure, no main effect for time or interaction effect for level of academic self-esteem and time were identified. For the general self, F (1, 19) = 8.698, p = .008, η_ρ^2 = .314 and the full scale, F (1, 19) = 5.035, p = .037, η_ρ^2 = .209. No other main effects for time or interaction effects were identified for the self-efficacy measure.

Literacy measures.

For the Burt there was a main effect for time, F (1, 19) = 22.332, p < .001, η_ρ^2 = .540, however, no interaction effect was identified between time and level of academic self-esteem, F (1, 19) = 3.241, p = .088, η_ρ^2 = .146. For the NARA measure, a main effect for time was identified for accuracy, F (1, 19) = 12.947, p = .002, η_ρ^2 = .401; and comprehension, F (1, 19) = 142.686, p < .001, η_ρ^2 = .882. An interaction effect between time and level of academic self-esteem was found for the comprehension component, F (1, 19) = 11.095, p = .004, η_ρ^2 = .369, with the average-high group demonstrating greater gains over time than the low group. For the morphological measures, a main effect for time was identified for the judgement measure, F (1, 19) = 9.138, p = .007, η_ρ^2 = .325. An interaction effect was identified between the level

of academic self-esteem and time, F (1, 19) = 4.243, p = .053, η_p^2 = .183, with the low group demonstrating greater gains between testing periods than the average-high group.

Study 2.

Psychosocial measures.

There was no main effect for time identified for the global self-esteem measure, F (1, 18) = .593, p = .451, η_p^2 = .032. However, there was a significant interaction effect for time and level of academic self-esteem, F (1, 18) = .625, p = .004, η_p^2 = .375, with the average-high group demonstrating increases in global self-esteem, while the low group demonstrated decreases in global self-esteem. No main effect for time or interaction effects were found for the academic self-esteem or resilience measures. For the self-efficacy measure, no main effects for time were identified for the general self-efficacy measure or related subscales. An interaction effect was identified for time and level of academic self-esteem for the emotional subscale, F (1, 18) = 14.337, p = .004, η_p^2 = .369, with the low group demonstrating increases in emotional self-efficacy between testing periods, while the average-high group exhibited a small decrease over time. No other interaction effects were identified for general self-efficacy.

Literacy measures.

Analysis found several main effects for the literacy measures but did not identify any interaction effects for the level of academic self-esteem and time. A main effect for time was identified for the Burt, F (1, 18) = 87.955, p < .001, with a large effect size, η_p^2 = .830. For the NARA measure, main effects for time were identified for all three components that included: accuracy, F (1, 18) = 68.571, p < .001, η_p^2 = .792, comprehension, F (1, 18) = 26.797, p < .001, η_p^2 = .598, and rate, F (1, 18) = 27.210, p < .001, η_p^2 = .602. For the

morphology measures, a main effect for time was found for the morpho-syntactic measure, F (1, 18) = 20.866, $p < .001$, $\eta_\rho^2 = .537$, and word analogy measure, F (1, 18) = 48.510, $p < .001$, $\eta_\rho^2 = .729$.

Resilience

The final set of analyses was carried out using mixed between-within subjects analysis of variance and explored the influence of resilience on the measures of psychosocial and literacy development. Participants were categorised into two groups according to their score at pre-intervention, on the resilience measure. The categories for each group were determined by identifying the median score for the measure, for all participants across the three studies, which then became the score from which the two groups were devised. Students with scores between 10, the minimum possible score, and 44 were categorised as low resilience and students with scores from 45 to 70, the maximum possible score, were categorised as high resilience. The descriptive statistics are presented in Appendix 19 (Study 1), Appendix 20 (Study 2), and Appendix 21 (Study 3).

Study 1.

Psychosocial measures.

A main effect for time was identified for the global self-esteem measure, F (1, 19) = 4.358, $p = .051$, $\eta_\rho^2 = .192$; however, there was no significant interaction between time and level of resilience, F (1, 19) = 2.943, $p = .102$, $\eta_\rho^2 = .134$. The high resilience group demonstrated lower global self-esteem scores at pre-intervention and made greater gains between testing periods. In contrast, the low resilience group demonstrated higher levels of global self-esteem at pre-intervention but made minimal growth between testing periods. A main effect for time was identified for academic self-esteem, F (1, 19) = 12.036, $p = .003$, $\eta_\rho^2 = .388$, with both groups demonstrating significant gains between testing periods; however,

no interaction between time and level of resilience was identified for academic self-esteem, F (1, 19) = 2.908, p = .104, η_ρ^2 = .133. It was observed that the high resilience group demonstrated lower scores on the academic self-esteem measure at pre-intervention and made the greatest gains between testing periods.

For the resilience measure, analysis did not identify a main effect for time, F (1, 19) = .139, p = .714, η_ρ^2 = .007, or an interaction effect, F (1, 19) = 1.247, p = .278, η_ρ^2 = .062. Mean scores indicated that the high resilience group demonstrated decreases between the testing periods, while the low resilience group showed an increase in their mean score. For the general self-efficacy measure, a main effect for time was identified for the full scale, F (1, 19) = 7.343, p = .014, η_ρ^2 = .279 and the emotional subscale, F (1, 19) = 13.234, p = .002, η_ρ^2 = .411. No interaction effects between time and level of resilience were identified for the general self-efficacy measure. Increases in scores, between testing periods, were identified for both groups on the full scale and emotional and social subscales. In contrast, for academic self-efficacy, the high resilience group, which had higher scores on the measure, demonstrated gains between testing periods, while the low resilience group demonstrated decreases between testing periods.

Literacy measures.

For the Burt, a main effect was identified for time, F (1, 19) = 30.707, p < .001, η_ρ^2 = .618, with the low resilience group making larger gains between testing periods. No interaction effect between level of resilience and time was identified, F (1, 19) = .580, p = .456, η_ρ^2 = .030. For the NARA measure, a main effect for time was identified for the accuracy, F (1, 19) = 18.155, p < .001, η_ρ^2 = .489 and comprehension component, F (1, 19) = 138.541, p < .001, η_ρ^2 = .879. No main effect for time was found for NARA-rate, F (1, 19) = .001, p < .978, η_ρ^2 = .000, with both groups demonstrating an increase in accuracy and

comprehension measures across the two time points. There were no significant interactions between level of resilience and time found for the NARA measure.

For the morphological measures, a main effect for time was found for the judgement measure, F (1, 19) = 4.705, p = .043, η_ρ^2 = .198, with both groups showing an increase in scores between the testing periods. No main effect for time was identified for the morpho-syntactic measure, F (1, 19) = .179, p = .677, η_ρ^2 = .009. No interaction effects between time and level of resilience were identified for the judgment, F (1, 19) = .096, p = .760, η_ρ^2 = .005 or morpho-syntactic measure, F (1, 19) = .064, p = .802, η_ρ^2 = .003. In the morpho-syntactic measure, the high resilience group demonstrated the lower score at pre-intervention but showed a greater increase at post-intervention when compared to the low resilience group, which demonstrated higher scores at pre-intervention but only slight gains in mean score at post-intervention testing.

Study 2.

Psychosocial measures.

For the self-esteem measures, analysis did not identify a main effect for time for global self-esteem, F (1, 18) = .266, p = .612, η_ρ^2 = .015, or academic self-esteem, F (1, 18) = .062, p = .806, η_ρ^2 = .003. There was no interaction effect between time and level of resilience for global self-esteem, F (1, 18) = .989, p = .658, η_ρ^2 = .011, with the low group demonstrating greater gains in comparison to the high group. No interaction effect between time and level of resilience was identified for academic self-esteem, F (1, 18) = .001, p = .980, η_ρ^2 = .000, with both groups demonstrating small decreases between testing periods. For the resilience measure, no main effect for time, F (1, 18) = 1.322, p = .265, η_ρ^2 = .068, or interaction effect was identified, F (1, 18) = 2.211, p = .154, η_ρ^2 = .109. In this measure, the

score for the high group notably decreased between testing periods, while the low group demonstrated small gains.

For general self-efficacy, there was no main effect for time, F (1, 18) = .759, p = .395, η_ρ^2 = .040; however, an interaction effect was identified for level of resilience and time, F (1, 18) = 9.528, p = .006, η_ρ^2 = .346, with the high group showing a reduction in general self-efficacy between testing periods, while the low group showed an increased in general self-efficacy across the two time points. For academic self-efficacy, there was no main effect for time, F (1, 18) = .545, p = .470, η_ρ^2 = .029, or interaction effect, F (1, 18) = 1.993, p = .175, η_ρ^2 = .100, with the high group showing reductions in academic self-efficacy, while the low resilience students showed small increases between the two time points. For social self-efficacy, no main effect for time, F (1, 18) = 1.214, p = .285, η_ρ^2 = .063 or interaction effect for time and level of resilience was found, F (1, 18) = .3.585, p = .074, η_ρ^2 = .166. Students in the high group showed a reduction in their social self-efficacy score while the low group showed small increases between pre- and post-intervention testing. An interaction effect was identified for emotional self-efficacy, F (1, 18) = 5.865, p = .026, η_ρ^2 = .246, with the low group showing an increase in scores over the two time points, while the high group demonstrated a decreased in scores. No main effect for time was identified for emotional self-efficacy, F (1, 18) = .059, p = .811, η_ρ^2 = .003.

Literacy measures.

For the Burt, a main effect was identified for time, F (1, 18) = 97.486, p < .001, η_ρ^2 = .844. Both groups demonstrated increased in scores across the two time periods. There was no interaction effect between resilience group and time for the Burt, F (1, 18) = .029, p = .867, η_ρ^2 = .002. A main effect for time, F (1, 18) = 81.607, p < .001, η_ρ^2 = .819 was identified for NARA-accuracy; however, there was no interaction effect between level of resilience and

time, F (1, 18) = .816, p = .378, η_ρ^2 = .043, with both groups demonstrating increased scores between the testing periods. A main effect for time was found for NARA-comprehension, F (1, 18) = 34.264, p < .001, η_ρ^2 = .656, but no interaction effect between level of resilience and time was identified, F (1, 18) = .631, p = .438, η_ρ^2 = .034, with both groups demonstrating increases in scores over the two time points. For NARA-rate a main effect was found for time, F (1, 18) = 30.439, p < .001, η_ρ^2 = .628; however, no interaction effect for time and level of resilience was identified, F (1, 18) = .379, p = .546, η_ρ^2 = .021, with both groups demonstrating increases in scores between pre- and post-intervention testing.

For morphology, main effects for time were identified for all three measures, judgement, F (1, 18) = 4.605, p = .046, η_ρ^2 = .204; morpho-syntactic, F (1, 18) = 21.313, p < .001, η_ρ^2 = .542; and word analogy, F (1, 18) = 59.826, p < .001, η_ρ^2 = .769. No interaction effects between time and level of resilience were identified for the morphological measures, judgement, F (1, 18) = .564, p = .462, η_ρ^2 = .030; morpho-syntactic, F (1, 18) = .032, p = .861, η_ρ^2 = .002; word analogy, F (1, 18) = .038, p = .848, η_ρ^2 = .002. In all three morphology measures, both groups demonstrated gains in scores between the two time points.

Study 3.

Psychosocial measures.

For the measures of self-esteem, analysis failed to identify a main effect (time) for global self-esteem, F (1, 14) = .085, p = .775, η_ρ^2 = .006, or academic self-esteem, F (1, 14) = .085, p = .775, η_ρ^2 = .006. There was no interaction effect identified between level of resilience and time for global self-esteem, F (1, 14) = .085, p = .775, η_ρ^2 = .006, with the high resilience group showing a small decrease over time, while the low resilience group showed small gains between the testing points. For academic self-esteem, no interaction effect was

found for time and level of resilience, F (1, 14) = 1.448, p = .249, η_ρ^2 = .094. It was identified that little difference was evident at pre-intervention between the scores of the groups. However, at post-intervention the high resilience group had demonstrated greater gains; whereas, the low resilience group had failed to make any gains.

There was no main effect (time) identified for the resilience measure, F (1, 14) = .520, p = .483, η_ρ^2 = .036; however, an interaction effect was found between level of resilience and time, F (1, 14) = 9.583, p = .008, η_ρ^2 = .406. The low resilience group demonstrated an increase in scores between testing periods, while the high resilience group showed decreases over time. For general self-efficacy, a main effect for time was identified for the emotional subscale, F (1, 14) = 4.597, p = .050, η_ρ^2 = .247, but not for the academic, F (1, 14) = .186, p = .673, η_ρ^2 = .013, social, F (1, 14) = 1.647, p = .220, η_ρ^2 = .105, or full scale, F (1, 14) = 3.004, p = .105, η_ρ^2 = .177. An interaction effect between level of resilience and time was identified for academic self-efficacy, F (1, 14) = 6.333, p = .025, η_ρ^2 = .311, with the high resilience group showing decreases in scores across time points, while the low resilience group demonstrated increases. An interaction effect for time and level of resilience was identified for general self-efficacy, F (1, 14) = 4.582, p = .050, η_ρ^2 = .247, with the low resilience group demonstrating gains in scores across the testing period, while the high resilience group showed slight decreases in scores between testing periods. No interaction effects for time and level of resilience were identified for the social subscale, F (1, 14) = 2.763, p = .119, η_ρ^2 = .165, and the emotional subscale, F (1, 14) = 2.468, p = .139, η_ρ^2 = .150. For both of these subscales, the lower group demonstrated large gains between testing periods, while the high resilience group showed decreases over time in the social subscale and small gains between testing periods for the emotional subscale.

Literacy measures.

For the Burt, a main effect was found for time, F (1, 14) = 70.935, $p < .001$, η_ρ^2 = .835. No interaction effect was identified between level of resilience and time for the Burt, F (1, 14) = .252, p = .623, η_ρ^2 = .018, with both groups demonstrating gains between the testing periods. For the NARA measure, main effects for time were identified for accuracy, F (1, 14) = 10.545, p = .006, η_ρ^2 = .430, comprehension, F (1, 14) = 37.525, $p < .001$, η_ρ^2 = .728, and rate, F (1, 14) = 10.136, p = .007, η_ρ^2 = .420. No interaction effects between time and level of resilience were identified for the accuracy, F (1, 14) = .103, p = .753, η_ρ^2 = .007, comprehension, F (1, 14) = 1.616, p = .224, η_ρ^2 = .104, and rate components, F (1, 14) = .183, p = .675, η_ρ^2 = .013. For the accuracy and rate components, both groups demonstrated gains in scores between testing periods. For the comprehension component, the low resilience group demonstrated greater gains between testing periods in comparison to the high resilience group.

For the morphology measures, main effects (time) were identified for judgement, F (1, 14) = 10.936, p = .005, η_ρ^2 = .439, morpho-syntactic, F (1, 14) = 17.366, p = .001, η_ρ^2 = .554, and word analogy, F (1, 14) = 12.948, p = .003, η_ρ^2 = .480. No interaction effect between time and level of resilience was identified for the judgement measure, F (1, 14) = 2.472, p = .138, η_ρ^2 = .150; however, it was observed that the low resilience group made greater gains in scores between testing periods in comparison to the high resilience group. No interaction effect was found for time and level of resilience for the morpho-syntactic measure, F (1, 14) = .021, p = .888, η_ρ^2 = .001, with both groups increasing in scores between the two time points. The interaction effect for time and level of resilience for word analogy approached significance, F (1, 14) = 4.409, p = .054, η_ρ^2 = .240, with the low resilience group demonstrating greater gains between testing periods than the high resilience group.

Discussion

The additional analyses were carried out to determine whether other variables were influential to the psychosocial and literacy development of students with LLD. These analyses were carried out in response to the variable findings that emerged from the three studies comprising this research, in order to gain insight into alternate explanations for the studies' findings, especially given the anomalous findings for Study 2. Initial analyses were performed to determine if specific participants in Study 2 had influenced subsequent findings. Other analyses explored the influence of gender, year level, and intervention group, as well as, initial levels of global self-esteem, academic self-esteem, and resilience on psychosocial and literacy development. This discussion reviews the findings of additional analyses that relate to gender, year level, and intervention group. The discussion of the role of differential levels of psychosocial development (global self-esteem, academic self-esteem, resilience) on literacy and psychosocial development is reserved for the general discussion and can be found in Chapter 7.

Analyses of the measures of psychosocial development, using paired sample *t-tests*, found that removing specific participants (Participant 211 and 202) did not result in significant changes to the existing results for Study 2. This finding suggests that other factors exist that may have influenced students' responses in the psychosocial measures in Study 2. One factor that may have influenced students' responses on the psychosocial measures is the different levels of literacy development that the students held, between the three intervention groups. One-way between-groups analysis of variance indicated that, at pre-intervention, students from Study 2 demonstrated significantly lower scores on multiple literacy measures (Burt, NARA-accuracy, NARA-rate, and morphology measures), in comparison to the students from Study 1 and Study 3. The lower levels of word reading accuracy demonstrated by students in Study 2 may have influenced, in turn, other areas of literacy development, such

as reading rate within the NARA measure. Responses to the morphology measures by students may have been influenced by the vocabulary lexicons held by the students. Vocabulary within the morphology measures may have been unfamiliar to students and even though the measures were orally administered, the students' level of comprehension may have been affected by the vocabulary contained within the measure, as well as, the relationships between the morphological units. Students' responses could also have been influenced by environmental factors outside the context of the intervention, such as, general classroom environment, teacher and peer relationships, or issues relating to students' home environments. This may be a relevant factor given some of the large decreases in students' responses between testing periods that were identified for students in Study 2.

Analysis identified that year level was not an influential variable for the self-esteem and resilience measures but was an influential variable resulting in significant differences in the mean scores of the general self-efficacy measure and its academic subscale. Subsequent analysis found that students in Year 4 had significantly higher mean scores than Year 6 students, for general and academic self-efficacy. The lack of significant differences for global or academic self-esteem measures supports existing literature (Chapman, 1988) that does not identify year level as an influential variable contributing to differences in self-esteem in students with LLD. One reason accounting for this finding may be the temporal stability that is associated with self-esteem. Research has indicated that individuals' perceptions of their previous experiences, which contribute to self-referential comparisons inherent to self-esteem, tend to increase in stability over time (Bong & Skaalvik, 2003; Pajares & Graham, 1999). The current findings tend to indicate that levels of self-esteem are stable for students with LLD between Years 4 and 6. This suggests that experiences that influence the development of self-esteem occur earlier within a student's educational experience. Chapman (1988) indicated that changes in ability perceptions for students with LLD could occur earlier

than the 7-8 years of age posited in developmental theories of self-esteem, due to negative experiences in their literacy development.

The notion that temporal orientation influences the stability of self-esteem is also applicable to the findings regarding self-efficacy. While past experiences also influence the development of self-efficacy, the future focus of self-efficacy has been argued to result in a greater degree of malleability, than is found for self-esteem (Bong & Skaalvik, 2003). This is attributed to the context-specific and performance based nature of experiences that underpin the development of self-efficacy, which results in self-efficacy being a primarily cognitive construct that relates to individual capabilities (Bong & Skaalvik, 2003; Lindsay, Dockrell, Letchford, & Mackie, 2002). In this research, the decreases in self-efficacy scores between Year 4 and Year 6 students indicates that the beliefs that students hold regarding their capabilities are altering over time and these changes may be specifically related to the academic context. These decreases may be in response to external factors that include curriculum demands and the classroom context. Literacy learning difficulties can become more problematic for students as they progress through the educational system. This is because in primary, or elementary school, students can experience a 4th grade (Year 5) slump; whereby, students encounter more difficult texts, of a variety of genres that contain more complex language and structural features (Sanacore & Palumbo, 2009). Even if students with LLD do not encounter increasingly complex or varied texts, difficulties become apparent due to a lack of texts that engage students in reading, which could contribute to the development of the aforementioned structural and language features (Sanacore & Palumbo, 2008). Furthermore, as students with LLD progress through the education system the demands of the curriculum increase along with the requirement for increased levels of proficiency in literacy. These increased curriculum demands can result in negative learning experiences for students

with LLD that can further negatively affect not only their literacy learning difficulties but also their beliefs in their capability to be successful during future learning experiences.

Gender was only found to be statistically significant for one literacy measure (word analogy), with a medium effect size. It is unclear why this difference occurred. Descriptive statistics identified that each group held the same composition of gender, with 18 females and 18 males. A small difference in mean scores is evident with a mean score for females of 9.72 compared to 7.72 for males. Given the small statistical significance (p = .047) and medium effect size (η^2 = .11), this finding could be attributed to chance. Gender was not an influential variable for the psychosocial measures. This finding aligns with current literature that has reported similarities between males and females for global self-esteem measures (Badayai & Ismail, 2012; Lindsay et al., 2002), as well as, domain-specific areas of self-esteem (Ferla et al., 2009; Lindsay et al., 2002). Gender has been identified as an external factor influencing psychosocial development; however, literature indicates that gender gaps tend to emerge around adolescence (Badayai & Ismail, 2012), which coincides with when factors such as social acceptance and physical features begin to increase in importance for students, especially females (Diseth, Meland, & Breidablik, 2014; Lindsay et al., 2002). It could also be suggested that existing levels of self-esteem and self-efficacy mediated the effect of gender on psychosocial development. Ferla et al. (2009) found that self-esteem beliefs are powerful mediators on external factors, such as gender, when variables are underpinned by affect or motivation. Thus, students' existing levels of self-esteem may have mediated the affect that gender may exert on resilience, as both measures include an affect component. It is likely that the lack of finding for gender in the self-efficacy measure is a reflection of the developmental trajectory of self-efficacy. Recent research (Diseth et al., 2014) and a meta-analysis (Huang, 2013) identified small but significant gender differences for self-efficacy. However, the decreases in self-efficacy that included academic self-efficacy emerged around

Grade 8 or Year 9 (Diseth et al., 2014). As with self-esteem, decreases in self-efficacy primarily affected females, which may be reflective of an increasing importance being placed on social feedback during adolescence. Thus, for the current cohort, the lack of findings regarding a gender gap is reflective of their current development stage.

Analyses found no differences between the intervention groups on the psychosocial development measures, at pre-intervention. This indicates that each study contained a cohort of students for whom the mean scores were similar. Analysis found significant differences in levels of literacy development at pre-intervention between the three studies. It was aforementioned that the students from Study 2 entered the intervention with the lowest mean scores for the measures of literacy development. Significant differences were identified between the mean scores for Study 1 and Study 2 and the mean scores for Study 3 on the Burt and NARA-accuracy, and for all three studies on the NARA-rate and morpho-syntactic measures. It is unclear why these differences occurred; however, it is likely that these differences can be attributed to the differential educational experiences of students that preceded this research.

Conclusions and Future Directions

The results from the additional analyses indicate that year level may be an influential factor in general and academic self-efficacy and literacy development in students with LLD. With regards to psychosocial development, analysies indicated that global and academic self-esteem was stable between year levels. This suggests that students' educational experiences prior to Year 4 contribute to developing both global and academic self-esteem; however, it is unclear if these experiences result in decreases in self-esteem, as proposed in research, for the students with LLD involved in the current study. Differences in levels of self-efficacy between year levels suggest that self-efficacy is less stable within the cohort of students

participating in this research. This suggests that self-efficacy may be more malleable than self-esteem, within the current intervention context. The results also suggest that the timing of an intervention needs to consider psychosocial development, as well as, literacy development. This is due to the influence that the demands of the educational curriculum can have, not only on the literacy development but also the psychosocial development, on students with LLD. The psychosocial findings will be further discussed in Chapter 7. Gender was not found to be a significant variable influencing psychosocial or literacy development in the current research; however, this may be attributed to the age of the students participating within the research. It is unknown the influence that gender may exert on the psychosocial development of these students in the future.

Chapter 7

General Discussion

Introduction

There were two aims to this research. The first aim was to explore whether the psychosocial development of students with LLD could be influenced via a targeted literacy intervention. The second aim was to determine whether the literacy development of students with LLD could be influenced via a targeted literacy intervention. To achieve these aims, three studies were carried out with students with LLD. Students with LLD, in Years 4 to 6, were assessed on a wide-range of literacy and psychosocial measures. These students had demonstrated lower levels of literacy development on standardised measures, were judged by teachers as achieving below the national standard for their age, and achieved less well when compared to their counterparts. As such, these students were considered to demonstrate LLD and without intervention these students would be highly likely to continue to fall behind in their literacy development. Students participated in a literacy intervention that in Study 1 included a focus on general literacy skills and in Study 2 and Study 3 included a focus on specific literacy skills, which included developing metalinguistic awareness, primarily morphological and orthographic awareness. This change in focus also enabled the investigation of whether one focus (general or specific) resulted in different effects for literacy and psychosocial development.

An Overview of Findings

Study 1 investigated the influence of a targeted intervention that included general instruction in decoding, vocabulary, and fluency, on the literacy and psychosocial development of students with LLD. Results indicated significant changes in the mean scores of the intervention group between testing periods for academic self-esteem, general self-efficacy and emotional self-efficacy. The finding of a positive increase in academic self-esteem supports existing literature (Elbaum & Vaughn, 1999, 2001; Hettinger, 1982) and also lends support to the notion that peers may be an influential factor in academic self-esteem (Casserly, 2013). The gains in general and emotional self-efficacy support the notion that general self-efficacy is influenced by an individual's affective state (Bandura, 1997). No significant differences were found for global self-esteem, resilience, reading attitude, and social and academic self-efficacy. The lack of finding for global self-esteem supports literature that has found academic achievement to be more closely related to academic self-esteem (Byrne, 1984; Hettinger, 1982). However, the lack of finding for academic self-efficacy does not support existing literature that has identified a strong association between academic self-efficacy and academic self-esteem (Ferla et al., 2009). Despite these later results, overall the findings indicated that psychosocial development could be influenced in students with LLD via a targeted intervention; however, the influence was variable across the psychosocial measures included in the study.

Results also indicated that literacy development was positively influenced across the intervention for the current sample of students. Significant changes were identified in the mean scores for single word and text reading accuracy, reading comprehension, and morphological awareness. No significant improvements were identified for students' rate of reading or the morpho-syntactic measure, although ceiling effects were evident in the morpho-syntactic task. Analysis of the control data indicated that the intervention group

made significant gains in two of the three school-based measures that included the STAR and Running Record measures. Overall the gains in literacy development suggested that a targeted intervention could positively affect the literacy development of students with LLD. The significant improvements in morphological awareness (judgement) suggest that morphology might play an influential role in the development of literacy skills for older students with LLD.

Study 2 also investigated the influence of a targeted intervention on the literacy and psychosocial development of students with LLD. However, in contrast to the instruction carried out in Study 1, this intervention involved instruction in metalinguistic awareness, specifically orthographic and morphological awareness. Analyses identified significant differences for all measures of literacy development, which indicated the intervention and its metalinguistic focus had a positive affect on the literacy development of the students with LLD. Analyses of the school control data found that the Intervention Group made gains in all three measures.

In contrast to Study 1, there was a lack of evidence of improvements in the measures of psychosocial development in Study 2. Indeed, the data indicated decreases in the mean scores for all psychosocial measures between testing periods. This suggested that the intervention had a negative affect on the psychosocial development of students. Correlational analyses identified variable associations between psychosocial and literacy development that included both positive and negative associations. The findings for psychosocial development did not support the notion that self-esteem would be positively affected via an intervention targeting literacy skills. Fluctuations in self-esteem (Badayai & Ismail, 2012), as well as, contingent self-esteem that is linked to successful and unsuccessful experiences within the intervention context and the interpretation of experiences within their social domains (Trzesniewski et al., 2013) were postulated as possible reasons for these findings. It was

suggested that, in the current study, the intervention context and the students' wider educational environment were possible influential factors that affected responses to the psychosocial measures. Therefore, the findings for Study 2 only supported the notion that the literacy development of students with LLD can be positively affected via a targeted intervention.

Study 3 mirrored Study 2 in terms of its research focus that included determining whether the targeted intervention, with a specific focus on orthographic and morphological awareness, could affect the psychosocial and literacy development of students with LLD. Results indicated a significant difference in the mean score for emotional self-efficacy. This suggested that students' interpretations of their emotional responses were being positively affected via a targeted intervention. This finding supports existing literature (Pajares, 1996) regarding the influence of emotional states in individual judgements; however, previous findings regarding the relationship between general self-efficacy and emotional self-efficacy were not supported (van Dinther et al., 2011). Also, the relationship between academic self-esteem and academic achievement (Chapman, 1988; Muijs, 1997) was not supported by correlational analysis, with a stronger association being found between global self-esteem and academic achievement. This may be indicative of the fact that students, in the current study, were primarily functioning within the global self-esteem domain.

Analysis identified significant improvements in all the measures of literacy development, which supported the notion that the literacy development of students with LLD can be positively affected by a targeted intervention. Comparison with control data indicated that, while the students with LLD demonstrated significant progress on the Running Record and OTJ-R measure, these gains did not differ significantly from the gains made by the students with LLD taking part in an alternate intervention (Control Group 1). The findings for the current study suggested that a targeted intervention could influence psychosocial

development, as well as, having the potential to positively influence the literacy development of students with LLD.

The variability of the findings across the three studies for psychosocial development resulted in additional analyses being performed using variables noted in research as possibly being influential to psychosocial development. These included; individual variation (Elbaum & Vaughn, 1999), year level/age (Chapman, 1988), gender (Badayai & Ismail, 2012); as well as, initial levels of psychosocial development (Elbaum & Vaughn, 1999). Results indicated that individual variation in specific students' responses to measures of psychosocial development did not influence the results for Study 2. Gender was not found to be an influential factor in psychosocial development within the current cohort. This was consistent with literature that suggests that gender gaps emerge around adolescence for self-esteem and self-efficacy, which was an older age group than the current participants (Badayai & Ismail, 2012; Diseth et al., 2014). However, year level was an influential variable for general and academic self-efficacy, with significant differences identified between students in Year 4 and Year 6. The findings for self-esteem and self-efficacy aligned with literature that suggests high stability for self-esteem (Bong & Skaalvik, 2003; Chapman, 1988; Pajares & Graham, 1999) and a higher degree of malleability for self-efficacy (Bong & Skaalvik, 2003). No differences were found between the intervention groups for the measures of psychosocial development. This indicated that each study included students with LLD with similar levels of psychosocial development. Students in Study 2 demonstrated the lowest mean scores for the literacy measures, with significant differences for all three studies identified for the morphology measures and NARA-rate. These differences were attributed to the students' different educational experiences prior to this research.

Analyses also identified that scores at pre-intervention on the global self-esteem, academic self-esteem, and resilience measures were influential in the performance of students

between testing periods on some psychosocial measures. The majority of interactions were found for the resilience measure. Overall, these results indicated that students with lower levels of global self-esteem, academic self-esteem, and resilience demonstrated gains to some measures of psychosocial development between testing periods, while students with higher levels of global self-esteem, academic self-esteem and resilience tended to be static or to demonstrate decreases over time. One anomaly was found in Study 2 for the global self-esteem measure. Students with low levels of academic self-esteem demonstrated decreases between testing periods to their global self-esteem scores, while students with average-high levels of academic self-esteem demonstrated increases to their global self-esteem scores. These results are discussed within the following sections.

Interpretations and Implications

Psychosocial Development in Students with Literacy Learning Difficulties (LLD)

Research investigating psychosocial development has reported that students with LLD can develop difficulties in the area of self-esteem. However, notions around the development of self-esteem for students with LLD are debated. Researchers such as Burden and Burdett (2005) reported high levels of self-esteem in students with dyslexia, while other researchers such as Lally (as cited in Galbraith & Alexander, 2005), contend that low self-esteem is unavoidable for students who are not successful in developing reading/literacy skills. The results of the additional analyses identified variation in the initial levels of psychosocial development of students with LLD in the current study. For global and academic self-esteem, variation was evident for students participating in Study 1 and Study 2; however, this variation was virtually absent in Study 3 with all bar one student scoring within the average-high range. These differences across studies may be associated with variations in students' literacy development. Analysis indicated that the mean scores for the literacy measures in

Study 3 were significantly higher than those for Study 1 and Study 2, with the exclusion of the comprehension measure. Thus, it could be suggested that low self-esteem may be associated with certain levels of low literacy development or particular types of literacy difficulties. This may be especially relevant for the students within Study 2, whom presented the lowest levels of literacy development. It could also be suggested that the literacy levels presented by students in Study 2 increased the severity of risk for these students, which may have contributed to the variation identified in the psychosocial development measures. Overall, it is questionable as to whether low levels of self-esteem are inevitable for students who have difficulties in literacy development, as argued by Lally (as cited in Galbraith & Alexander, 2005). However, in contrast to the findings from Burden and Burdett (2005) some students with LLD did present with low levels of self-esteem. However, the variation in current findings suggests that facets within the educational environment may be influential in the development of self-esteem, which is consistent with findings from Burden and Burdett (2005). Overall, heterogeneity appears to exist in psychosocial development with students with literacy problems and identifying reasons for this should help with understanding such development, as well as, factors associated with educational difficulties.

The results of the three studies indicated that the mean scores for the intervention groups on the literacy measures significantly improved between testing periods. The additional analyses indicated that differences in the initial scores of global and academic self-esteem and resilience measures had little influence on the identified improvements in literacy development. This is with the exception of Study 1, where interaction effects between academic self-esteem and time resulted in contrasting effects for the comprehension (greater gains for the average-high group) and morphological judgement (greater gains for the low group) measures. The finding for NARA-comprehension is consistent with literature that suggests students with higher skill levels are more likely to develop positive academic self-

esteem (Chapman & Tunmer, 2003). However, this finding is contradicted by the results for the morphological judgement measure. Overall, further research may be useful that investigates the existing levels of psychosocial development of students who participate in academic interventions. The main interpretation of the current research is that growth in literacy development is associated with change in psychosocial development and that these changes may be due to changes in the evaluations that students made over the course of the intervention regarding their literacy experiences.

Levels of psychosocial development at pre-intervention were found to have differential effects on psychosocial development. The main finding from the interaction effects identified in the additional analyses was that the intervention was not efficacious for students who demonstrated higher scores on the psychosocial measures at pre-intervention. Furthermore, this occurred regardless of whether the groups were determined using global and academic self-esteem or resilience. The students who had low scores on the psychosocial measures in the main showed evidence for gains in psychosocial scores; whereas, the average-high group in the main showed evidence of decreases from pre- to post-intervention. The sole anomaly occurred in Study 2, where students in the average-high group for academic self-esteem at pre-intervention demonstrated increases in global self-esteem at post-intervention; in contrast, students that demonstrated low scores on academic self-esteem experienced decreases to global self-esteem. This is a somewhat surprising finding that would be seen as contradictory to literature. For example, Baumeister et al. (1996) argued that students with high levels of self-esteem are often unrealistic and should respond negatively to experiences where their actual level of competence fails to match their personal judgement. However, it could be attributed to what hierarchal theorists such as Harter (2012a), call a significant developmental milestone for children; that is, the emergence of global self-esteem and the increased accuracy that individuals develop regarding self-appraisals due to the

emergence of several novel cognitive skills. If a number of students were showing the effects of these developmental changes then lowered global self-esteem may follow for these students (Harter, 2012a).

One cognitive skill is the increase in social comparisons that students make, which contribute to self-appraisals. It could be that students used social comparisons throughout the intervention to make self-appraisals of their performance, which again implicates peers as influential to the development of self-esteem. According to Harter (2012a), if students judge their self against others and this results in a lowered perception of literacy competence, then the social comparisons may exacerbate the risk factors associated with LLD, resulting in further decreases to global self-esteem. In contrast, students who judge their self as being more literacy competent when compared to others should show an additional increase in global self-esteem. Furthermore, these comparisons may occur vicariously that means judgements can be made in absence of their own performance, which can also contribute to changes in self-esteem (Oettingen, 1995).

A second cognitive skill that may be related to variations across children relates to students' cognitive awareness of their actual capacities. Development of this awareness means that individuals compare their actual capacities against their ideal capacities, which can lead to changes in self-esteem (Harter, 2012a). If the emergence of global self-esteem for students was occurring over the course of the intervention, then it is likely that students were becoming increasingly aware of their actual capacities within literacy versus their ideal capacities, which would result in comparisons between the two capacities. If students' awareness of their actual capacity were lower than their ideal capacity then this could lead to further reductions in global self-esteem; however, if actual capacity surpassed ideal capacity, then this would result in increased global self-esteem for students.

Overall, the additional analyses found that students with low initial levels of psychosocial development benefit from academic interventions. This supports existing research that has found initial scores of psychosocial development to be influential to subsequent development, such as Elbaum and Vaughn (2003). However, the findings of the current study contrast with findings, such as Elbaum and Vaughn (2003) that also found modest effects for students with average-high self-esteem. The main findings from the current study indicated that students with LLD who held average-high levels of self-esteem or resilience experienced decreases to their psychosocial development over the course of the intervention. Furthermore, gains in psychosocial scores were also primarily found in self-efficacy, as opposed to, self-esteem. Resilience scores, at pre-and post-intervention, showed that resilience as opposed to global and academic self-esteem scores appeared to exert more influence on measures of psychosocial development.

Resilience and its Association with Literacy and Psychosocial Development

Resilience was used in the current research as a measure of psychosocial development. Resilience is characterised by four waves of research that have sought to explain how individuals adapt to difficulties that emerge during periods of adversity (Richardson, 2002; Schoon, 2006). The first wave of research focused on resilience as a personality trait, with the theory that it was the traits of individuals that were instrumental to the development of resilience. Such research investigated the characteristics of individuals who engaged in maladaptive behaviours and failed to adapt during adverse times (Richardson, 2002; Schoon, 2006). The second wave focused on the outcomes of individuals who positively adapted during times of adversity. Resilience was conceptualised as a dynamic process that develops within an individual that enables them to cope with, or overcome, risk during periods of adversity (Garmezy, Masten, & Tellegen, 1984; Rutter, 2006; Werner, 1993). The third wave of resilience research involved the concept of resilience

and the motivational processes within the individual (Richardson, 2002). The fourth wave currently concerns the role of genetics, neurobiology, and environmental influences on the development of resilience (Rutter, 2012).

This research defined resilience according to second wave research, thus, resilience was conceptualised as a dynamic process that develops within an individual. Within the literature, resilience is characterised by two specific elements. These include the experience of adversity or risk, as well as, the successful adaptation, overcoming, or experience of positive outcomes in the presence of the adverse circumstance (Rutter, 2012; Schoon, 2006). Risk factors are those factors that increase the likelihood of maladjustment or negative outcomes for an individual (Ofiesh & Mather, 2012). In the current research literacy learning difficulties were conceptualised as a risk factor. This aligns with existing literature that has identified LLD as a risk factor for students (Margalit, 2003; Miller, 2002). This is because, as previously mentioned, difficulties in literacy development influence students' ability to succeed within the educational context as well as within society.

Resilience was assessed in this research by the manageability subscale of the Sense of Coherence - Orientation to Life Questionnaire by Antonovsky (1987). This subscale was selected because successful adaptation could be inferred from how an individual manages, whether directly or indirectly, the risk associated with LLD. While Luthar and Zelazo (2003) contend that any inferences about resilience requires the assessment of both risk and positive adaption, it was viewed that the pre-determination of LLD as a risk factor meant that the focus could be placed on positive adaptation and protective factors or processes. Furthermore, measures of literacy development provide insight as to the severity of risk that the literacy learning difficulties may present to the students as well as increasing understanding of the risks associated with LLD. This is crucial because research has found that these students not only achieve at lower levels and receive lower grades, they also have

higher rates of grade retention as well as being assigned to low-ability groups throughout school (Becker & Luthar, 2002). Furthermore, these students are more likely to be assigned to low-ability vocational tracks during high school. Overall, difficulties in literacy development extend to influence personal development and opportunities during the lifespan. Overall, levels of manageability at pre-intervention and changes to these scores between testing periods were viewed as being indicative of resilience, in students with LLD.

According to second wave theory successful adaptation in the face of adversity requires research to focus on the factors that buffer or mediate the affect of risk factors and how they contribute to positively enhancing an individual's adaptive behaviour (Werner, 2000b). The identification of additional risk factors that influence circumstances of adversity is also viewed as essential to resilience research as well as identifying the processes that underpin risk and protective factors because these provide insight as to possible associations between factors (Barton, 2005; Donahue & Pearl, 2003; Luthar et al., 2006). Research has indicated that risk factors can co-exist (Luthar et al., 2006) and that the outcomes of risk factors can act as risk factors for future outcomes (Donahue & Pearl, 2003). Indeed the multiplicity of factors and processes that influence resilience has resulted in methodological issues for researchers (Luthar & Zelazo, 2003). According to Luthar and Zelazo (2003) the contribution of research to the field of resilience is incremental and, as such, can involve proximal or distal systems, as well as, being broad or in-depth. The scope of the current research is proximal and focuses on the protective factors and processes present within the students' educational context. The educational context has been identified within literature as an influential factor due to the multiplicity of factors that affect the development of resilience in students with LLD (Luthar et al., 2006; Miller, 2002; O'Connor & McCartney, 2007; Rutter, 2012; Schoon, 2006).

Resilience and Literacy Development

The three studies comprising this research examined the effectiveness of a targeted intervention, comprising either general (Study 1) or specific (Study 2, Study 3) literacy instruction with a sample of students with LLD. The results from the three studies indicated that the intervention was associated with significant gains in literacy areas. This finding has important implications for older primary students with LLD. Firstly, the changes in literacy development indicate that the LLD of older students are malleable to change. Thus, participating in the targeted literacy intervention could be beneficial to the literacy development of older students with LLD. According to Condly (2006) it is important to determine between interventions that seek to develop protective factors for individuals, as opposed to interventions that aim to reduce risk. However, it was noticeable in the current intervention that a dual effect may have occurred for students. This is because the literacy development that students demonstrated may act as a protective factor for students, with effects in literacy and some psychosocial areas, as well as, buffering or reducing the risk associated with literacy difficulties for the students. However, it does need to be cautioned that the effectiveness of the intervention, in terms of whether it facilitates positive adaptation, is likely to be dependent upon the interactions between the individual and their proximal environment (Luthar & Zelazo, 2003), which in the current research comprises the student and the intervention context.

It is beyond the scope of the current research to identify the multiplicity of interactions between the students and their proximal environment that may act as protective factors or processes; however, insight into these can be gained by identifying salient factors that exert an influence on the students within this research (Luthar et al., 2006). Salient factors are defined as those factors that influence a large number of individuals within the same risk context (Luthar et al., 2006). The first salient factor in the current research is the

challenging nature of the intervention that contrasts the nature of academic interventions that typically target psychosocial development. The majority of literacy interventions that also have a psychosocial focus include purposeful work that is correctly paced and that aligns with students' ability levels (Casserly, 2013). Rack (2004) notes that students with learning needs should receive work that is appropriate to their strengths and weaknesses, while Humphrey and Mullins (2002) emphasise the importance of relationships for students. Indeed, Everatt and Reid (2010) suggest that interventions targeting psychosocial development should occur once achievement has been fostered and is likely to continue for the individual.

In the current intervention, students were challenged throughout the course of the intervention; thus, fostering from early on in the intervention the potential for gains in achievement. The challenging nature of the intervention may have resulted in reducing the risks associated with LLD and the development of a protective factor. In order to develop an understanding as to why this occurred, it is important to identify the precise mechanisms that underlie factors that are protective for students (Luthar & Zelazo, 2003). One mechanism underlying the challenging nature is the use of age-appropriate texts, as opposed to reading-age appropriate texts. The use of age-appropriate texts meant that students were exposed to more complex vocabulary than what they would be typically exposed to during an instructional reading session. Easy-levelled texts were briefly used to teach students the instructional format, with the remainder of the intervention comprising of medium or hard-levelled texts.

A second mechanism underlying the challenging nature of the intervention included the decoding component of the intervention that required students to decode the complex vocabulary encountered within the texts. While in all three studies students were taught to decode words via a specific strategy, in Study 2 and Study 3 the decoding strategy required

students to learn and apply their morphological and orthographic understandings in order to accurately read words. It could be suggested that the decoding strategy reduced the risk of continued LLD for students in these two studies because it increased student knowledge of letter patterns (orthographic) and units of meaning (morphological), which could be applied to decode other vocabulary. A protective factor may also have developed because the students' developing knowledge of morphological units and orthographic patterns could be applied within the vocabulary and fluency components of the intervention to further protect the students against the risks associated with LLD. However, additional research is required to determine any evidence of continued use of increased student knowledge within the general classroom context.

Improvements in literacy development, over the course of the intervention, may have also resulted in what Luthar et al. (2006) term as generative effects for the students with LLD. Generative effects occur when risk factors are modified that enables additional protective factors or processes to occur (Luthar et al., 2006). It is likely that the aforementioned salient factors identified from the intervention could have generative effects for students. Firstly, the use of age-appropriate texts may be influential in the decisions that students make regarding their ability to be successful at a given literacy task (that is, their self-efficacy), which can extend outside of the intervention context. Secondly, the development of a specific decoding strategy that was developed specifically to read longer words provides students with a means to decode morphologically complex words that can be applied to texts outside of the intervention context, for example, within the home and general classroom environments.

Comparisons with the students participating in the alternate intervention and typically developing students were problematic due to the reliance on teacher-based ratings, issues of validity for the Running Record measure, as well as, possible variation in the administration

of measures. The analyses of the control data suggests that the on-going risks associated with LLD for the students within the intervention group may have been modified, due to the increases in literacy development across the three studies, with the exception of decreases in the OTJ-R score in Study 1 and the STAR score in Study 3. Generative effects may contribute to interrupting negative feedback loops that Stanovich (2008) argues arise from the Matthew Effect of reading; thus, serving to foster the positive adaptions of students, thus contributing to reducing the risk of continued LLD. According to Everatt and Reid (2010) the success of learning interventions for students with LLD is dependent upon interrupting negative feedback loops. Although this sits outside of the current research design, identifying and investigating possible generative effects in the future is extremely important because of the flow on effects that can occur within other areas of the educational context.

Resilience and Psychosocial Development

The results from the literacy measures suggest that changes in literacy development influences resilience and the emergence of protective factors and processes to reduce the continued risk of LLD for students. However, the initial analyses (*t*-tests) carried out for the three studies did not support the notion that resilience was affected via the targeted intervention. Study 1 and 3 both showed positive change between pre- and post-intervention testing; however, this was non-significant. Results from Study 2 indicated that the students' resilience had decreased between testing periods and this approached statistical significance. The overall findings from the literacy measures and the resilience measure could be viewed as contradictory, which indicates that understanding the influence of the targeted intervention on the development of resilience in students with LLD is complex. One reason for this, according to Rutter (2012), is due to the fact that while a risk factor may be experienced by a group of individuals, a multiplicity of variables influences adaptation for these individuals. This indicates that heterogeneity in terms of outcomes for students with LLD is likely to

occur. Furthermore, heterogeneity has been found to influence the dynamic processes that relate to the development or emergence of risk and protective factors, which underpins the development of resilience in individuals (Rutter, 2012). Thus, salient factors should be explored with an awareness of their possible differential effects on students with LLD. This indicates that understanding individual differences or heterogeneity between groups of students is instrumental to comprehending resilience within the current sample of students, which aligns with current research literature (Elbaum & Vaughn, 2003; Rutter, 2012). Descriptive statistics indicated that heterogeneity existed in the resilience measure for the current group of students, at pre-intervention, with scores ranging from 19 to 68, out of a possible 70. The scores at the upper end suggest that for some students protective factors had already been developed or that factors may exist that buffered or reduced the risk of continued LLD, but that this did not occur for other students.

One salient factor that may have influenced the development of resilience is students' perceptions of their competence in literacy. According to Boyden and Mann (2005) exposure to risk (in this research, LLD) does not automatically result in increased levels of vulnerability for the child. Positive perceptions of competence may have acted as a protective factor or buffered students against the continued risk of LLD, thus, resulting in the development of resilience. In contrast, negative perceptions of competence could be viewed as contributing to increases in vulnerability to the continued risk of LLD for some students, thus, negatively influencing resilience. This suggests that the experiences that took place within the intervention are influential to perceptions of competence and as such are likely to contribute to the emergence of a protective or vulnerability factor. The heterogeneity in terms of risk and protective factors in individuals is why Luthar et al. (2006) states that assumptions of risk should be cautioned against. This supports the notion that consideration needs to be given to salient factors such as student's perceptions of literacy competency and the variables

that influence the outcomes for students in this research, which should include the individual and their proximal context, when implementing a targeted intervention to a targeted group of seemingly homogenous students with LLD.

In order to gain an understanding of the heterogeneity in the resilience measure, additional analyses were performed. This included categorising the resilience scores at pre-intervention into low and average-high groups for each study. Analysis found that initial levels of resilience interacted over time with other areas of psychosocial development that included significant effects with general self-efficacy (Study 2, Study 3), emotional (Study 2) and academic self-efficacy (Study 3), as well as resilience (Study 3). Students with low levels of resilience experienced growth in the aforementioned areas between testing periods, while scores for students with average-high levels of resilience remained constant or decreased. For students, with higher levels of resilience, which may have been developed via positive perceptions of literacy competence, salient factors within the intervention may have negatively affected these perceptions over time; thus, adversely affecting their self-efficacy.

One salient factor that could influence the development of self-efficacy is the visibility of the students' literacy difficulties. The visible nature of the intervention and its possible role in highlighting students literacy difficulties and its influence in the development of emotional self-efficacy was discussed in Chapter 4; however, its application to the development of general and academic self-efficacy is also highly plausible. The current intervention contained specific tasks relating to the components of the intervention (decoding, vocabulary, fluency) and these were carried out via individual and group based activities. The visible nature of the activities, via their structure and method of implementation may have influenced the judgements of personal competence (protective factor) that students had previously held. The notion that the context is influential to the perceptions of individuals and their judgements of competence is evident within literature

(Boyden & Mann, 2005; Cummings et al., 2002). If students with high levels of self-efficacy were presented with tasks that resulted in challenges to their existing perceptions of competence, then decreases to self-efficacy could occur. However, if students with low levels of self-efficacy experienced success in tasks that exceeded their previous judgements of competence, then increases to self-efficacy would be likely to occur. This reflects the dynamic nature of risk and resilience and the notion that a protective process within a different context can alter to increase vulnerability for an individual (Boyden & Mann, 2005).

In the current study, the decreases for the group of students with high self-efficacy suggest that perceptions of competence that had previously fostered a protective factor and the development of high resilience had changed. Tasks within the intervention that challenged perceptions of competence can become a risk factor by increasing the vulnerability of the student to his or her LLD. One mechanism that may have interacted with these two factors is compensatory strategies. It is highly likely that students with LLD who have experienced enduring LLD that are pervasive in nature have developed compensatory strategies to counteract their difficulties in literacy development. According to Fraser, Galinsky, and Richman (1999) compensatory factors reduce the level of risk for the individual. Thus, it should follow that in the current study compensatory factors would reduce the level of continued risk of LLD for students. Identifying specific compensatory strategies were outside of the scope of the current research; however, the notion that compensatory strategies could be an influential factor in the heterogeneity of resilience identified within the current research warrants further discussion. Higher perceptions of competence, in the current study, may have been fostered by compensatory strategies that the student had developed outside of the intervention context in order to positively adapt to their LLD. According to Ridsdale (2004), compensatory strategies can be both adaptive and beneficial for individuals with LLD because they reduce risk or buffer the student against

risk. Thus, the on-going risk of literacy learning difficulties can be reduced for the students via compensatory strategies that result in perceptions of success within literacy-based activities. Compensatory strategies may also have been developed external to literacy, such as a high sense of competence in sporting or social activities that may have buffered the student against failure within literacy-based tasks.

However, compensatory strategies may have increased the vulnerability of students whom held high self-efficacy and resilience, to the continued risk of LLD within the current research. This is especially likely to occur if the compensatory strategies pertained to literacy-based activities, which could not be enacted for the individual within the intervention context. This lends support to the notion that the context of the intervention and associated factors are important to developing an understanding of the association between resilience and self-efficacy in students with LLD. Low levels of resilience in students with LLD accompanied with low perceptions of competence (self-efficacy) may also act as a compensatory strategy because low self-efficacy; that is, a lack of confidence in their ability to complete literacy-based tasks acts to buffer the student against the on-going risk of failure in this area. In the current study, the visible tasks and their structured implementation may have exerted a positive influence on the students because it reduced their risk of on-going failure; thus, positively influencing their existing perceptions of competence leading to increases of self-efficacy.

Another mechanism related to the visibility of the intervention and perceptions of competence is the extensive practice that students received through the structure of the intervention. Students experienced multiple practice opportunities in decoding, vocabulary, and fluency, which results indicated contributed to the promotion of literacy development. The experience of success, in this research via extensive practice opportunities, according to Bandura (1997) results in mastery, which is one of four key sources underpinning the

development of self-efficacy. Boyden and Mann (2005) contend that experiences resulting in mastery can contribute to the development of resilience. These notions provide support for the argument that an association exists between self-efficacy and the development of resilience. In the current study, this is supported by the additional analyses that found the intervention exerted the most influence on students' development of self-efficacy and that resilience was an influential factor in this.

Resilience and Self-Efficacy

Literature has recognised that an association exists between resilience and self-efficacy. Bandura (1997) noted that overcoming difficulties by perseverance was a requirement for resilient self-efficacy. Research has reported that self-efficacy is a predictor of resilience (Martin & Marsh, 2006; Wyman, 2003). Furthermore, Martin and Marsh (2006) and Wyman (2003) found that higher levels of self-efficacy were found in students who demonstrated resilience. This is supported in the current research (Chapter 6) in which students with higher levels of resilience also held higher levels of self-efficacy. As with resilience, researchers have also emphasised the context as instrumental in the development of self-efficacy (Bandura, 1997). However, Cassidy (2015) notes that little research exists that investigates exactly how context-specific factors and responses influence the development of self-efficacy and resilience in the face of academic difficulties. Research by Cassidy (2015) into context-specific factors in high school aged students found that these context-specific factors, such as feedback, perseverance, effort, and past successes were influential in self-efficacy and resilience, with the most notable factors relating specifically to the individual. Cassidy (2015) further stated that positive levels of self-efficacy were likely to be influential in increased levels of resilience and that this was because students with higher levels of self-efficacy demonstrated adaptive responses to adverse circumstances. However, the findings from the current research suggest that the association between self-efficacy and

resilience is more complex and that context-specific factors can have differential effects for students. Further consideration also needs to be given to the direction of the relationship between self-efficacy and resilience. Self-efficacy and resilience may be better conceptualised as a reciprocal relationship and identifying context-specific factors, which are influential in this association, should underpin future research.

Implications for Teaching Practice

The literacy development of students is a major focus of most schools. For older students experiencing literacy learning difficulties, most practitioners place an emphasis on the remediation of these difficulties. However, a key finding from the current research is that a sole focus on the remediation of literacy learning difficulties may not be adequate for several reasons. Firstly, findings identified associations between measures of literacy and psychosocial development. In particular, the findings indicated that the remediation or development of skills in specific areas of literacy had differential effects on psychosocial development. This suggests that practitioners cannot assume that fostering literacy development in a specific area leads to increases in regards to the evaluations that students make about themselves (self-esteem), their capabilities (self-efficacy), or their ability to manage the risk posed by LLD (resilience). Having an understanding of the perceptions that students with LLD hold of themselves is likely to be beneficial for practitioners when targeting the literacy development of these students.

Secondly, the findings from the current research suggest that resilience is likely to be influential in the relationship between literacy and psychosocial development. One key finding was that initial scores on the resilience measure at pre-intervention were found to be influential to change in other measures of psychosocial development, primarily self-efficacy, over the course of the intervention. This suggests that the ability of students to manage the

risk that LLD may present is influential to the perceptions that students hold about their competence. Students who held lower scores of resilience were found to make greater gains in self-efficacy than students who held higher scores of resilience at pre-intervention who made little gains or experienced decreases to their self-efficacy. This questions the emphasis that schools tend to place on self-esteem in students. This is because these findings suggest that changes in how a student evaluates his or her competence in tasks (self-efficacy) is more malleable than how a student evaluates his or her self (self-esteem). The findings also suggest that because initial levels of resilience may be influential to students' evaluations of competence over time that practitioners assess resilience at pre-intervention and that the findings are accounted for in the design and implementation of interventions that target the literacy development of students with LLD.

Limitations with Consideration Towards Future Research

This section examines the limitations that emerged during the course of the research and, where possible, reflects upon these limitations with a consideration for future research.

The first limitation lies in the researcher as a teacher paradigm. It could be suggested that the researcher placed greater emphasis on the psychosocial development of the students via the teaching interactions in the intervention because psychosocial development was the primary focus of the research. However, this is an unlikely effect for two reasons. Firstly, variability in the psychosocial results was demonstrated across the three studies. Secondly, scores at pre-intervention were found to be influential to subsequent psychosocial development. However, carrying out future research with general classroom teachers highlights an important consideration. Engaging classroom teachers within future research designs would provide a means by which context-specific factors that include judgements of competence in the development of self-efficacy could be explored. Having classroom

teachers directly involved in the research would also enable the investigation of the role of metalinguistic awareness in literacy learning difficulties in older students to occur. This would be especially beneficial to determining any evidence of continued use of increased metalinguistic awareness by students with LLD, following an intervention, within a general classroom context. Classroom based research would also be beneficial in determining if any identified effects extended over a longer period of time, as well as, occurring beyond literacy. With the co-operation of the classroom teacher, assessment of metalinguistic awareness could be carried out in a similar manner to the current research and could include multiple points of time. Generative effects could also be measured via problem-solving tasks based in other areas of literacy not assessed in the current study, such as spelling and written language, as well as, in other curriculum areas.

The findings from the current study indicated that an association existed between self-efficacy and resilience. This is consistent with notions in current literature. Research has also indicated that for some at-risk individuals, indicators of risk and protective factors at elementary school are associated with adaptability in young adulthood that included academic self-efficacy (Forrest-Bank & Jenson, 2015). It could be suggested that indicators of risk or adaptability in students with LLD may have a latent effect in other areas of literacy and psychosocial development. However, the timeframe over which associations between different areas develop are unknown. Future research could consider the inclusion of additional testing points within the methodological framework in order to develop an understanding of the development of additional associations between literacy and psychosocial development that may contribute to reducing or increasing the risk of LLD for students. Comments from classroom teachers had suggested that latent increases in the literacy development of the student with LLD had occurred following the intervention. Whether these changes in literacy development are associated with changes in the

psychosocial development of these students could be an important consideration. This is especially important given the role that generative effects may have in disrupting negative feedback loops for students with LLD.

One of the major findings in the current research involved the association between resilience and self-efficacy. This finding suggests that self-efficacy is an important area of psychosocial development that should be considered in future research. Findings indicated that growth in psychosocial development across the three studies primarily occurred in self-efficacy. However, it is also evident that students' perceptions of competence (self-efficacy) at pre-intervention appeared to be of key importance. This suggests that future research with students with LLD should include a measure of self-efficacy and that components of the intervention should be considered in light of the self-efficacy scores at pre-intervention. This is because students with higher self-efficacy scores appear to require a focus on maintaining high resilience. In contrast, students with lower self-efficacy scores appear to have benefited from the current intervention. Thus, consideration needs to be given to the type of literacy intervention that students with high self-efficacy receive. However, determining the type of intervention required for students with high self-efficacy may require consideration of aspects that underpin high self-efficacy for students with LLD. This is because if high self-efficacy is based on inaccurate appraisals of their literacy capabilities, then an intervention that results in more accurate appraisals of their literacy capabilities may be negatively associated with development in other psychosocial areas, such as resilience. Consideration in future research could be given to whether literacy interventions may require an additional psychosocial aspect, such as the development of meta-awareness in problem solving tasks. Alternatively, future research could consider whether existing components of the learning activities within the current intervention can be adapted to guard against reductions in other psychosocial areas of development.

The findings in the current research indicated that students with LLD operated at different levels of self-esteem that included both the global and academic level. The question then arises as to why this occurred, and future research is needed to investigate the association between levels of psychosocial development and literacy development, prior to any intervention. Results from Study 3 indicated that gains in academic achievement were more strongly correlated with gains in global self-esteem, which contrasts literature that has identified a stronger relationship between academic achievement and academic self-esteem. Understanding how an academic intervention can influence an individual's perceptions of him or herself is worthy of future consideration. This is especially given that higher levels of global self-esteem have been postulated as being related to individuals' judgements or perceptions of competence. Future research should consider the role of perceptions of competence in the development of academic and global self-esteem in order to further understand the heterogeneity that this population of students presents.

Limitations existed in terms of the control data used in this research. The control data included data from the school-based literacy assessments, which formed part of the school's annual assessment practices. The first limitation related to validity and reliability issues of the school-based assessments, most notably Running Records and OTJ. According to Blaiklock (2004) differences between the processes involved in silent versus oral reading cast doubt over the validity of Running Records. Furthermore, differences in procedural methods means that conclusions regarding students' reading accuracy are not reliable. Poskitt and Mitchell (2012) contend that the arbitrary nature of standards of learning influence the validity of OTJ, along with differences in the knowledge bases and criteria used to make judgements. The second limitation relates to the collection of control data and data points that were not apparent to the researcher until the end of Study 2 and was compounded by the departure of the deputy principal, the liaison to the researcher, at the same time. Overall, the collection of

control data was reliant on the measures used by the school for literacy assessment, the clarity of information, as well as the support provided by the participating school. Carrying out future research within general classroom contexts would also contribute to strengthening the professional relationship between the school and its staff and the researcher. This may result in alternates being explored and enacted for the collection of control data. This could include the matching of intervention and control students via a wait list control group that would enable more detailed comparisons of data to occur.

During Study 1 and 2, several limitations to the content and administration of the psychosocial and literacy measures were identified. It was advantageous that these limitations could be addressed between each study and the adaptations made during the course of the research will hold any future replication of the research in good stead. However, careful consideration needs to be given to measures used within future research involving students with LLD. Firstly, researchers need to ensure that the measures utilised are measuring the targeted construct. This is especially relevant in the field of psychosocial development where it can be contentious as to how the construct is defined. Secondly, the measures need to be reliable and valid for the targeted population. While numerous measures exist for the areas of psychosocial development within the current study, it is evident that there is a dearth of measures that exist to measure resilience in children. Future research should continue to develop measures appropriate to measuring the psychosocial development of children, especially resilience.

It could be suggested that the repeated measures research design of the current study may result in a practice effect. A practice effect occurs when individuals improve as an effect of the practice that they receive by completing the same measure on multiple occasions, which affects reliability (Cohen, Manion, & Morrison, 2007). However, in the current research this is unlikely. This is because multiple variables have been touted as influential to

the development of a practice effect in students that include reduced anxiety and formal instruction (Hausknecht, Halpert, Di Paolo, & Moriarty Gerrard, 2007). However, literacy and psychosocial development were key elements of the current research; therefore, decreases in anxiety, which was reflected through changes to emotionality, and improvements in literacy development were desired outcomes. Overall, the limitations of the current research were not viewed as negatively impacting on the focus of the current research that sought to examine the association between psychosocial and literacy development of students with LLD in order to contribute some detailed findings to the existing literature and future research.

Conclusions

The remediation of LLD of primary aged students has long been the focus of research in education. Students that experience LLD have been found to experience difficulties in their psychosocial development. However, it should not be assumed that all students with LLD experience the same difficulties in their psychosocial development. The heterogeneity that exists for students with LLD in terms of their psychosocial development means that, as much careful consideration needs to be given to this area that is currently given to understanding the literacy difficulties of these students.

Within research, a major focus has been placed on self-esteem in students with LLD. This may have arisen from the notion that self-esteem is a fundamental outcome of education and that positive perceptions of the self are argued as integral to students' ability to adjust, both on a personal and social basis (Humphrey et al., 2004). The associations that have been identified as existing between self-esteem and other academic outcomes that include academic achievement, behaviour, and motivation may have also influenced the focus that researchers place on self-esteem for students with LLD (Chapman, 1988; Ju et al., 2013)

The current research supports the notion that a targeted literacy intervention is influential to the psychosocial development of older primary students with LLD. However, the findings of the current research suggest that key consideration should be given to the role of resilience and self-efficacy in students with LLD. Most importantly, the data from this study argue that prior to any intervention, levels of resilience and self-efficacy should be taken into account. This is because facets within the intervention may require adaptation to ensure that students who have high levels of resilience do not experience decreases to their self-efficacy that in turn adversely affect their resilience.

This is not to say that self-esteem should not be a consideration in future research because of the documented association between self-esteem and self-efficacy (Ferla et al., 2009). However, this research does indicate that self-efficacy is more malleable than self-esteem, which suggests that self-efficacy to a more logical area of psychosocial development to target in older students with LLD. According to Bandura (1997) a belief in one's self-efficacy is fundamental for individuals. Self-efficacy may be of increased importance to students with LLD. This is because beliefs of self-efficacy are influential to how much effort students expend on tasks, as well as, how much they will persevere on a task (Pajares, 1996). Furthermore, emotionality is a fundamental aspect of self-efficacy (Pajares, 1996). This suggests that changes to emotional self-efficacy may exert an affect on self-esteem that is underpinned by an affect component. Bandura (1997) also argues that self-efficacy is associated with resilience due to the adversity that individuals experience during the development of knowledge. Overall, this suggests that self-efficacy may have a reciprocal relationship with self-esteem and that resilience is also involved in this association; however, more research is needed to understand this association more clearly; especially in relation to the how these areas develop for older students with LLD.

This research identified several variables of interest. These included student factors, such as contingent self-esteem and perceptions or judgements of competence as well as context-specific factors such as the role of compensatory strategies, as being influential to psychosocial development. It is likely that judgements or perceptions of competence are influential because they are subjective and are based on previous experiences, which suggests that they are important to the development of self-efficacy and self-esteem, even though they are noted in literature to have different levels of specificity and sources (Bong & Skaalvik, 2003; Pajares, 1996). The role that judgements of competence play in the development of self-esteem in students with LLD supports the notion that peers are influential to the development of self-esteem. This is due to self-esteem being underpinned by social comparisons; whereas, judgements of competence based on self-efficacy beliefs are task related (Pajares, 1996). This suggests that judgements of competence are influenced by the contextual factors.

Compensatory strategies were highlighted in the research as one precise mechanism influencing the development of self-efficacy. Compensatory strategies can be adaptive for students with LLD in that they reduce the on-going effect of the literacy difficulties for students. However, this research also highlighted that context was an influential factor in the effectiveness of compensatory strategies for students with LLD. This is because the compensatory strategies that contributed to higher perceptions of competence within the general classroom environment may have increased the vulnerability of the student to the on-going LLD, within the intervention context. Whether these perceptions of competence were unrealistic or overinflated is outside of the domain of the current research. However, this research suggests that low perceptions of competence that acted to buffer the on-going risk of LLD for students within the general classroom context resulted in gains to self-efficacy within the intervention context. Future research should investigate the differential effects that

compensatory strategies may have on the development of self-efficacy within different educational contexts.

The targeted intervention resulted in significant literacy gains for the students with LLD in the current study. The challenging nature of the intervention that included the use of age-appropriate texts meant that gains could be fostered in students from early on in the intervention. The inclusion of morphological and orthographic awareness was one component that may have reduced the on-going risk that LLD posed to students. This is because increases in metalinguistic and orthographic awareness may have fostered a protective factor that exerted a generative effect on other components within the intervention context, as well as, outside the educational context. It is likely that success in literacy development is entwined in fostering psychosocial development. Targeting psychosocial development via an academic intervention is advantageous because of gains that can be made to students' psychosocial and literacy development. Ensuring that students with LLD are able to participate within local and global society requires that focus be placed on the remediation of literacy learning difficulties; as well as, fostering psychosocial development.

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Appendix 1

Measure of Literacy Development

Morphological Awareness-Judgement Task. Adapted from (Nagy et al., 2006).

Test items.

1. ship-shipment
2. top-topic
3. dirt-dirty
4. met-metal
5. let-letter
6. apart-apartment
7. cloud-cloudy
8. begin-beginner
9. ham-hammer
10. bread-breadth
11. war-warrant
12. ten-tenant
13. read-reader
14. cool-coolly
15. lad-ladder
16. music-musical
17. bell-belly
18. able-ably
19. paint-painter
20. ban-banner

Appendix 2

Measure of Literacy Development

Morphological Production-Morpho-Syntactic Task. Adapted from (Carlisle, 2000).

Practice items.

1. Geography is the science that studies different (country). ……..
2. I (start) my new school last week. ……..

Test items.

1. If you want to learn (dive), join a club. …….
2. I usually go (swim) in the sea every Friday. …….
3. New Zealand has a lot of (volcano). …….
4. Auckland is the (big) city in New Zealand. ..……
5. South Island is (large) than the North Island. …….
6. Orana Wildlife Park is an (interest) place to visit. …….
7. The weather is usually hot and (sun) in Australia. …….
8. Run (quick) to catch the bus. …….
9. There are (danger) animals in the forest. …….
10. My friend has many (hobby). …….
11. What food is (eat) at a celebration? …….
12. Today the rain is (heavy) than yesterday. …….
13. What are you (do) this weekend? …….
14. How many (play) are there in a football team? …….
15. Christchurch Cathedral was (build) a long time ago ..…….
16. We went (shop) last Thursday. …….

17. I like to read English (story). …….

18. Sam (phone) her friend this morning. …….

19. Fiji is (hot) than New Zealand. …….

20. Margaret Mahy is a famous New Zealand (write). …….

Appendix 3

Measure of Literacy Development

Morphological Awareness-Judgement Task. Adapted from (Nagy et al., 2006).

Practice items.

1. begin-beginner
2. music-musical

Test items.

1. ship-shipment
2. top-topic
3. dirt-dirty
4. met-metal
5. let-letter
6. discuss-discussion
7. cloud-cloudy
8. fame-famous
9. ham-hammer
10. bread-breadth
11. war-warrant
12. ten-tenant

13. read-reader

14. cool-coolly

15. lad-ladder

16. shade-shadow

17. bell-belly

18. able-ably

19. piano-pianist

20. ban-banner

Appendix 4

Measure of Literacy Development

Morphological Production-Morpho-Syntactic Task. Adapted from Carlisle (2000).

Practice items.

1. country. Geography is the science that studies different countries.
2. start. The motor spluttered but then it started.

Test items.

1. danger. Wild animals that live in the forest can be very …….
2. four. In the race, the cyclist came in …….
3. respond. The mother told her child that he/she must start to be ……
4. suggest: The teacher said that I made a good …….
5. examine: Harry Potter studied hard for his first wizarding ..……
6. anger: Seeing that his bike had been stolen made the boy feel..……
7. five: At the school cross-country the boy came in ……..……
8. combine: The girl thought that lettuce, cheese, and sauce made a great ……..
9. courage: Saving the dog from the fire was said to be very …….……...
10. locate: The place for the picnic was a lovely …….
11. decide: Choosing your favourite toy can be a hard …….
12. produce: The cultural festival was a great …….
13. describe: In order to find the man they had to give a good …….
14. attend: The teacher said to the child, "Please pay ……."
15. active: The boy was tired after so much …….
16. play: In a football team, there are eleven …….

17. story: My favourite books to read are mystery …….

18. interest: I find the animals at Orana Wildlife Park very …….

19. magic: My favourite person at the fair was the …….

20. act: Jim Carrey is a famous …….

Appendix 5

Measure of Literacy Development

Morphological Production-Word Analogy Task. Adapted from Nunes et al. (1997).

Practice items.

	A	B	A	B
1	sing	singer	read	
2	man	men	boy	

Test items.

1	book	books	tree	
2	Looked	look	used	
3	work	worker	swim	
4	salt	salty	shiny	
5	see	saw	dance	
6	happy	happiness	ill	
7	monkey	monkeys	wolf	
8	tall	taller	sun	
9	start	starter	driver	

10	add	addition	invent	
11	loud	loudest	fast	
12	discuss	discussion	direct	
13	celebrate	celebration	educate	
14	quick	quickly	heavy	
15	kick	kicked	make	
16	sleep	sleeping	smile	
17	bake	baker	farm	
18	sun	sunny	health	
19	write	writer	art	
20	hunger	hungry	strength	

Appendix 6

Measure of Literacy Development

Morphological Production-Morpho-Syntactic task. Adapted from Carlisle (2000).

Practice items.

1. country. Geography is the science that studies different …….
2. start. The motor spluttered but then it …….
3. adventure: The girl went on the trip because it sounded very…….

Test items.

1. danger. Wild animals that live in the forest can be very …….
2. four. In the race, the cyclist came in …….
3. respond. The mother told her child that he/she must start to be ……...
4. suggest: The teacher said that I made a good …….….
5. explode: The firefighters worked hard to put out the fire caused by the ……
6. anger: Seeing that his bike had been stolen made the boy feel..…….
7. five: At the school cross-country the boy came in ……..……
8. define: The boy looked in the dictionary for the word's …….……...
9. courage: Saving the dog from the fire was said to be very …….……...
10. locate: The place for the picnic was a lovely …….
11. decide: Choosing your favourite toy can be a hard …….
12. produce: The cultural festival was a great …….
13. describe: In order to find the man they had to give a good …….
14. attend: The teacher said to the child, "Please pay ……."
15. active: The boy was tired after so much …….

16. play: In a football team, there are eleven …….

17. story: My favourite books to read are mystery …….

18. interest: I find the animals at Orana Wildlife Park very …….

19. magic: My favourite person at the fair was the …….

20. act: Jim Carrey is a famous …….

Appendix 7

Results of Additional Paired Sample *t-tests* for Psychosocial Measures-Study 2

Table 31. *Results of Paired t-tests (n =19) for the Psychosocial Measures minus Participant 211 (Study 2)*

Psychosocial Measure	*t*	*p*
Global Self-Esteem	-.78	.938
Academic Self-Esteem	.49	.629
Resilience	1.75	.097
General Self-Efficacy	.54	.596
Academic Self-Efficacy	.94	.361
Social Self-Efficacy	.37	.718
Emotional Self-Efficacy	.79	.439

Appendix 8

Results of Additional Paired Sample *t-tests* for Psychosocial Measures-Study 2

Table 32. *Results of Paired t-tests (n = 19) for the Psychosocial Measures minus Participant 202 (Study 2)*

Psychosocial Measure	*t*	*p*
Global Self-Esteem	-.58	.570
Academic Self-Esteem	.90	.380
Resilience	1.89	.076
General Self-Efficacy	.85	.409
Academic Self-Efficacy	1.39	.183
Social Self-Efficacy	1.40	.179
Emotional Self-Efficacy	1.68	.111

Appendix 9

Comparisons of Psychosocial Development in Students with LLD at Pre-Intervention-Year Level

Table 33. *Descriptive Statistics for Psychosocial Measures of Students with LLD (Year Level)*

	Year 4 Study 1 (*n* = 17)		Year 5 Study 1 (*n* = 12)		Year 6 Study 1 (*n* = 28)	
Psychosocial Measure	*M*	*SD*	*M*	*SD*	*M*	*SD*
Global Self-Esteem	29.35	4.50	27.00	3.89	27.14	4.54
Academic Self-Esteem	16.53	4.19	16.08	3.55	14.18	3.45
Resilience	48.59	10.25	46.00	8.88	42.38	10.37
General Self-Efficacy	107.71	17.62	92.00	24.87	95.23	18.87
Academic Self-Efficacy	37.47	6.17	31.92	8. 90	29.14	6.91
Social Self-Efficacy	35.65	6.55	30.00	8.77	30.75	6.85
Emotional Self-Efficacy	34.59	7.05	30.08	9.80	29.14	8.93

Appendix 10

Comparisons of Psychosocial Development in Students with LLD at Pre-Intervention-Year Level

Table 34. *Descriptive Statistics for Literacy Measures of Students with LLD (Year Level)*

	Year 4			Year 5			Year 6		
Literacy Measure	*N*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
Burt	17	43.88	10.45	12	56.25	16.41	28	44.25	15.47
NARA-Accuracy	17	31.71	11.75	12	43.42	19.67	28	33.04	16.87
NARA-Comprehension	17	9.29	2.91	12	14.00	5.64	28	11.00	3.91
NARA-Rate	17	35.90	12.35	12	50.40	22.14	28	37.90	16.72
Morphological Awareness-Judgement	17	11.29	3.20	12	14.25	3.44	28	12.43	3.65
Morphological Production-Morpho-Syntactic	17	9.06	4.21	12	14.25	1.91	28	14.50	3.79
Word Analogy	16	8.31	3.55	9	9.33	2.55	11	8.91	2.43

Appendix 11

Comparisons of Psychosocial Development in Students with LLD at Pre-Intervention-Gender

Table 35. *Descriptive Statistics for Psychosocial Measures for Students with LLD at Pre-Intervention (Gender)*

	Female (n = 27)		Male (n = 30)	
Psychosocial Measure	*M*	*SD*	*M*	*SD*
Global Self-Esteem	27.89	4.33	27.67	4.61
Academic Self-Esteem	15.22	2.58	15.33	4.69
Resilience	45.04	11.96	44.93	8.63
General Self-Efficacy	97.07	17.31	93.57	24.40
Academic Self-Efficacy	33.30	6.13	31.23	9.22
Social Self-Efficacy	32.59	6.63	31.57	8.22
Emotional Self-Efficacy	31.19	7.169	30.77	10.16

Appendix 12

Comparisons of Literacy Skills in Students with LLD at Pre-Intervention-Gender

Table 36. *Descriptive Statistics for Literacy Development of Students with LLD (Gender)*

	Female			Male		
Literacy Measure	*n*	*M*	*SD*	*N*	*M*	*SD*
Burt	27	49.44	15.78	30	44.17	14.01
NARA-Accuracy	27	37.85	19.01	30	32.10	13.67
NARA-Comprehension	27	11.56	4.54	30	10.73	4.19
NARA-Rate	27	43.48	20.49	30	36.74	13.74
Morphological Awareness-Judgement	27	12.26	3.91	30	12.67	3.29
Morphological Production-Morpho-Syntactic	27	13.15	3.45	30	12.53	4.34
Morphological Production-Word Analogy	18	9.72	2.89	18	7.78	2.78

Appendix 13

Between Study Comparisons of Psychosocial Development in Students with LLD at Pre-Intervention-Study 1, 2 and 3

Table 37. *Descriptive Statistics for Psychosocial Measures of Students with LLD (Study 1, 2, 3)*

	Study 1 (n = 21)		Study 2 (n = 20)		Study 3 (n = 16)	
Psychosocial Measure	*M*	*SD*	*M*	*SD*	*M*	*SD*
Global Self-Esteem	26.86	4.56	27.05	4.58	29.88	3.58
Academic Self-Esteem	14.95	3.89	15.50	4.82	15.44	2.03
Resilience	43.52	7.80	44.65	12.27	47.31	10.55
General Self-Efficacy	88.19	18.03	101.60	25.22	96.50	17.84
Academic Self-Efficacy	30.62	7.15	34.35	9.39	31.63	6.61
Social Self-Efficacy	29.95	8.00	34.10	8.07	32.25	5.32
Emotional Self-Efficacy	27.62	7.04	33.15	10.34	32.63	7.88

Appendix 14

Between Study Comparisons of Literacy Development in Students with LLD at Pre-Intervention-Study 1, 2 and 3

Table 38. *Descriptive Statistics for Literacy Measures for Students with LLD (Study 1, 2, 3)*

	Study 1 (n = 21)		Study 2 (n = 20)		Study 3 (n = 16)	
Literacy Measure	*M*	*SD*	*M*	*SD*	*M*	*SD*
Burt	44.05	14.94	40.10	10.14	44.25	14.08
NARA-Accuracy	33.67	17.50	27.20	9.64	45.88	16.62
NARA-Comprehension	10.57	4.39	10.20	3.81	13.00	4.59
NARA-Rate	39.34	18.09	29.66	8.27	53.54	16.57
Morphological Awareness-Judgement	13.05	2.52	10.60	3.27	14.06	4.22
Morphological Production-Morpho-Syntactic	16.71	1.98	8.75	3.04	12.81	3.17
Morphological Production-Word Analogy			7.40	2.46	10.44	2.71

Appendix 15

Within Group Comparisons of Psychosocial and Literacy Development in Students with LLD-Global Self-Esteem (Study 1)

Table 39. *Pre- and Post-Intervention Scores for Low Group (n = 8) and Average-High Group (n = 13) for Global Self-Esteem (Study 1)*

	Low				Average-High			
	Pre		Post		Pre		Post	
Test	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Literacy Development								
Burt	43.25	12.09	51.00	13.88	44.54	16.91	52.92	19.20
NARA-Accuracy	32.38	15.12	37.88	14.66	34.46	19.38	40.38	15.55
NARA-Comprehension	10.25	4.43	18.38	6.12	10.77	4.53	18.31	5.41
NARA-Rate of Reading	39.93	13.13	38.26	12.28	38.98	21.08	39.97	21.83
Morphological Awareness-Judgement	12.75	2.44	14.88	2.75	13.23	2.65	14.08	2.63
Morphological Production-Morpho-Syntactic	16.75	2.87	17.38	2.62	16.69	1.32	16.62	2.82
Morphological Production-Word Analogy								
Psychosocial Development								
Global Self-Esteem	22.13	2.03	26.13	2.48	29.77	2.86	29.31	3.28
Academic Self-Esteem	14.00	5.76	16.38	4.78	15.54	2.22	17.77	3.44
Resilience	45.50	3.97	40.00	10.20	42.31	9.38	47.62	10.18
General Self-Efficacy	79.63	23.71	92.00	20.74	93.46	11.61	100.62	16.48
Academic Self-Efficacy	28.13	9.94	30.38	10.84	32.15	4.56	31.85	7.72
Social Self-Efficacy	25.88	9.51	31.13	9.79	32.46	6.00	34.77	7.60
Emotional Self-Efficacy	25.63	7.21	30.50	7.25	28.85	6.93	34.00	3.98

Appendix 16

Within Group Comparisons of Psychosocial and Literacy Development in Students with LLD-Global Self-Esteem (Study 2)

Table 40. *Pre- and Post-Intervention Scores for Low Group (n = 7) and Average-High Group (n = 13) for Global Self-Esteem (Study 2)*

	Low				Average-High			
	Pre		Post		Pre		Post	
Test	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Literacy Development								
Burt	38.14	3.31	46.57	5.29	41.15	12.43	50.54	15.27
NARA-Accuracy	24.00	5.23	33.14	6.09	28.92	11.55	36.62	11.01
NARA-Comprehension	9.14	1.57	13.00	2.00	10.77	4.55	15.08	4.33
NARA-Rate of Reading	29.73	9.23	39.04	5.35	29.63	8.11	39.34	7.26
Morphological Awareness-Judgement	9.29	2.98	11.14	4.41	11.31	3.30	13.85	4.06
Morphological Production-Morpho-Syntactic	9.43	1.51	11.00	2.77	8.38	3.62	12.00	3.29
Morphological Production-Word Analogy	8.29	2.98	12.14	3.72	6.92	2.10	11.00	2.20
Psychosocial Development								
Global Self-Esteem	22.14	1.95	25.14	4.71	29.69	3.12	29.08	5.95
Academic Self-Esteem	12.00	3.92	13.29	3.20	17.38	4.25	16.38	4.63
Resilience	35.43	13.05	37.57	3.91	49.62	8.76	42.54	8.97
General Self-Efficacy	86.29	20.13	88.71	12.96	109.85	24.37	104.08	16.82
Academic Self-Efficacy	29.86	7.84	29.57	7.46	36.77	9.52	34.69	9.23
Social Self-Efficacy	30.29	6. 50	28.43	7.76	36.15	8.15	34.92	7.16
Emotional Self-Efficacy	26.14	8.76	30.71	6.97	36.92	9.32	34.46	5.65

Appendix 17

Within Group Comparisons of Psychosocial and Literacy Development in Students with LLD-Academic Self-Esteem (Study 1)

Table 41. *Pre-and Post-Intervention Scores for Low Group (n = 6) and Average-High Group (n = 15) for Academic Self-Esteem (Study 1)*

	Low				Average-High			
	Pre		Post		Pre		Post	
Test	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Literacy Development								
Burt	40.00	14.81	44.33	13.03	45.67	15.19	55.33	17.78
NARA-Accuracy	26.50	14.96	30.17	13.41	36.53	18.08	43.13	14.19
NARA-Comprehension	9.67	3.56	14.67	3.50	10.93	4.74	19.80	5.60
NARA-Rate of Reading	35.82	16.26	32.24	16.41	40.75	19.11	42.15	18.93
Morphological Awareness-Judgement	13.00	2.83	16.17	1.60	13.07	2.49	13.67	2.66
Morphological Production-Morpho-Syntactic	16.83	2.93	17.33	2.66	16.67	1.59	16.73	2.79
Morphological Production-Word Analogy								-
Psychosocial Development								
Rosenberg Self-Esteem Scale	24.17	5.456	27.17	4.021	27.93	3.845	28.47	3.091
Academic Self-Esteem	10.33	2.658	14.67	3.445	16.80	2.513	18.27	3.751
Resilience	46.00	7.239	45.50	11.113	42.53	8.026	44.40	10.809
General Self-Efficacy	88.83	24.012	94.83	24.457	87.93	16.069	98.33	16.025
Academic Self-Efficacy	27.33	9.791	26.67	10.746	31.93	5.675	33.13	7.520
Social Self-Efficacy	32.00	7.874	36.33	9.092	29.13	8.167	32.20	8.025
Emotional Self-Efficacy	29.50	7.662	31.83	8.060	26.87	6.906	33.00	4.536

Appendix 18

Within Group Comparisons of Psychosocial and Literacy Development in Students with LLD-Academic Self-Esteem (Study 2)

Table 42. *Pre- and Post-Intervention Scores for Low Group (n = 6) and Average-High Group (n = 14) for Academic Self-Esteem (Study 2)*

	Low				Average-High			
	Pre		Post		Pre		Post	
Test	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Literacy Development								
Burt	40.00	15.31	49.83	17.57	40.14	7.75	48.86	10.71
NARA-Accuracy	26.33	13.29	35.17	14.83	27.57	8.71	35.50	6.98
NARA-Comprehension	11.00	5.51	15.00	5.59	9.86	3.01	14.07	2.90
NARA-Rate of Reading	26.64	4.04	36.29	4.34	30.96	9.37	39.58	7.16
Morphological Awareness-Judgement	10.17	2.79	11.33	3.45	10.79	3.53	13.57	4.54
Morphological Production-Morpho-Syntactic	9.50	2.51	13.00	2.97	8.43	3.28	11.07	3.08
Morphological Production-Word Analogy	8.17	2.14	11.83	3.97	7.07	2.59	11.21	2.26
Psychosocial Development								
Rosenberg Self-Esteem Scale	25.50	4.42	20.67	3.56	27.71	4.65	30.71	3.29
Academic Self-Esteem	9.17	1.60	11.17	2.93	18.21	2.55	17.07	3.65
Resilience	39.17	6.85	35.67	4.80	47.00	13.49	43.00	7. 98
General Self-Efficacy	73.83	19.15	78.67	11.29	113.50	16.74	107.29	10.37
Academic Self-Efficacy	25.67	9.18	24.00	10.33	38.07	6.83	36.71	4.50
Social Self-Efficacy	26.50	6.63	27.17	5.27	37.36	6.33	35.00	7.71
Emotional Self-Efficacy	21.67	8.07	27.50	4.04	38.07	6.66	35.57	5.43

Appendix 19

Within Group Comparisons of Psychosocial and Literacy Development in Students with LLD-Resilience (Study 1)

Table 43. *Pre- and Post-Intervention Scores for Low Group (n = 12) and Average-High Group (n = 9) for Resilience (Study 1)*

	Low				Average-High			
	Pre		Post		Pre		Post	
Test	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Literacy Development								
Burt	39.67	11.53	48.75	15.66	49.89	17.55	48.75	18.58
NARA-Accuracy	29.75	16.80	36.25	11.58	38.89	18.00	43.67	18.31
NARA-Comprehension	10.42	4.12	17.92	5.18	10.78	4.97	18.89	6.25
NARA-Rate of Reading	35.86	10.79	35.45	14.03	43.99	24.80	44.48	22.92
Morphological Awareness-Judgement	12.75	2.73	13.92	3.12	13.44	2.30	15.00	1.80
Morphological Production-Morpho-Syntactic	17.25	1.87	17.33	2.93	16.00	2.00	16.33	2.40
Morphological Production-Word Analogy								
Psychosocial Development								
Global Self-Esteem	27.83	4.61	28.08	3.85	25.56	4.42	28.11	2.71
Academic Self-Esteem	16.08	3.32	17.33	3.75	13.44	4.28	17.11	4.43
Resilience	38.42	4.60	41.75	9.25	50.33	5.61	48.67	11.58
General Self-Efficacy	83.75	15.70	93.00	18.03	94.11	20.12	103.11	17.82
Academic Self-Efficacy	30.25	4.52	30.17	8.78	31.11	9.96	32.78	9.12
Social Self-Efficacy	28.33	8.42	31.50	8.54	32.11	7.29	35.89	8.12
Emotional Self-Efficacy	25.17	5.92	31.33	5.47	30.89	7.39	34.44	5.48

Appendix 20

Within Group Comparisons of Psychosocial and Literacy Development in Students with LLD-Resilience (Study 2)

Table 44. *Pre- and Post-Intervention Scores for Low Group (n = 9) and Average-Low Group (n = 11) for Resilience (Study 2)*

	Low				Average-High			
	Pre		Post		Pre		Post	
Test	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Literacy Development								
Burt	36.78	6.02	46.00	7.25	42.82	12.18	51.73	15.67
NARA-Accuracy	24.11	5.09	33.22	7.17	29.73	12.30	37.18	11.15
NARA-Comprehension	8.00	2.35	12.78	1.92	12.00	3.90	15.64	4.46
NARA-Rate of Reading	31.54	8.21	39.39	6.69	28.13	8.39	37.94	6.62
Morphological Awareness-Judgement	9.00	2.45	10.44	3.21	11.91	3.36	14.91	4.09
Morphological Production-Morpho-Syntactic	7.22	3.31	10.00	2.78	10.00	2.24	13.00	2.72
Morphological Production-Word Analogy	7.11	2.93	11.22	3.56	7.64	2.11	11.55	2.12
Psychosocial Development								
Global Self-Esteem	23.89	3.55	25.22	6.16	29.64	3.67	29.73	4.74
Academic Self-Esteem	12.89	4.96	12.67	3.28	17.64	3.64	17.45	4.03
Resilience	34.89	8.59	35.89	4.08	52.64	8.42	44.82	8.01
General Self-Efficacy	84.11	24.90	89.56	15.38	115.91	14.56	106.18	14.88
Academic Self-Efficacy	29.78	9.62	30.89	7.52	38.09	7.70	34.55	9.78
Social Self-Efficacy	29.56	8.50	30.44	9.61	37.82	5.65	34.45	5.92
Emotional Self-Efficacy	24.78	8.48	28.22	4.32	40.00	5.57	37.18	4.38

Appendix 21

Within Group Comparisons of Psychosocial and Literacy Development in Students with LLD-Resilience (Study 3)

Table 45. *Pre-and Post-Intervention Scores for Low Group (n = 9) and Average-High Group (n = 7) for Resilience (Study 3)*

	Low				Average-High			
	Pre		Post		Pre		Post	
Test	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Literacy Development								
Burt	56.89	14.56	66.78	15.28	60.14	14.37	71.29	16.10
NARA-Accuracy	44.56	20.01	53.11	17.64	47.57	12.26	58.00	17.80
NARA-Comprehension	14.00	5.77	20.00	9.61	11.71	2.22	20.86	3.24
NARA-Rate of Reading	55.73	20.93	59.24	23.17	50.77	9.27	55.32	12.63
Morphological Awareness-Judgement	15.00	3.61	16.78	2.33	12.86	4.91	17.86	1.46
Morphological Production-Morpho-Syntactic	13.00	2.83	15.67	2.50	12.57	3.78	15.43	.79
Morphological Production-Word Analogy	9.22	3.03	14.11	3.41	12.00	1.00	13.29	2.56
Psychosocial Development								
Global Self-Esteem	28.00	2.55	28.67	3.46	32.29	3.35	32.14	2.80
Academic Self-Esteem	15.44	2.40	15.44	1.59	15.43	1.62	16.86	2.80
Resilience	39.67	3.74	46.56	6.89	57.14	7.69	52.86	7.97
General Self-Efficacy	86.78	15.34	99.00	13.97	109.00	12.54	107.71	16.44
Academic Self-Efficacy	28.56	6.23	30.78	6.26	35.57	5.03	34.00	7.02
Social Self-Efficacy	29.33	3.12	33.78	4.09	36.00	5.35	35.43	5.44
Emotional Self-Efficacy	28.89	7.96	34.44	7.02	37.43	4.79	38.29	5.22